X10SRG-F

USER'S MANUAL

Revision 1.0

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Manual Revision 1.0

Release Date: October 27, 2014

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Preface

This manual is written for system integrators, IT technicians and knowledgeable end users. It provides information for the installation and use of the SUPERMICRO X10SRG-F motherboard.

About This Motherboard

The SUPERMICRO X10SRG-F Motherboard supports a single Intel® E5-2600/1600 Series Processor (LGA 2011 socket). With the Intel® C612 chipset built in, the X10SRG-F motherboard offers exceptional system performance and storage capability. Features such as ten SATA ports, support for up to 256GB RDIMM and 512GB LRDIMM of memory, dual 1Gb LAN, and optimized Dual/Quad GPU solution make the X10SRG-F series ideal for server platforms.

Please refer to our website (http://www.supermicro.com/products/) for processor and memory support updates.

*This product is intended to be installed and serviced by professional technicians.

Manual Organization

Chapter 1 describes the features, specifications and performance of the motherboard, and provides detailed information on the Intel® 612 chipset.

Chapter 2 provides hardware installation instructions. Read this chapter when installing the processor, memory modules and other hardware components into the system. If you encounter any problems, see **Chapter 3**, which describes troubleshooting procedures for video, memory and system setup stored in the CMOS.

Chapter 4 includes an introduction to the BIOS, and provides detailed information on running the CMOS Setup utility.

Appendix A provides BIOS Error Beep Codes.

Appendix B lists software program installation instructions**.**

Appendix C contains the UEFI BIOS Recovery instructions.

Appendix D contains the Dual Boot Block instructions.

Conventions Used in the Manual

Special attention should be given to the following symbols for proper installation and to prevent damage done to the components or injury to yourself:

Warning: Critical information to prevent damage to the components or data loss.

Important: Important information given to ensure proper system installation or to relay safety precautions.

Note: Additional Information given to differentiate various models or provides information for correct system setup.

Contacting Supermicro

Headquarters

Address:	Super Micro Computer, Inc. 980 Rock Ave. San Jose, CA 95131 U.S.A.
Tel:	+1 (408) 503-8000
Fax:	+1 (408) 503-8008
Email:	marketing@supermicro.com (General Information) support@supermicro.com (Technical Support)
Web Site:	www.supermicro.com

Europe

Address:	Super Micro Computer B.V. Het Sterrenbeeld 28, 5215 ML 's-Hertogenbosch, The Netherlands
Tel:	+31 (0) 73-6400390
Fax:	+31 (0) 73-6416525
Email:	sales@supermicro.nl (General Information) support@supermicro.nl (Technical Support) rma@supermicro.nl (Customer Support)
Web Site:	www.supermicro.nl

Asia-Pacific

Address:	Super Micro Computer, Inc. 3F, No. 150, Jian 1st Rd. Zhonghe Dist., New Taipei City 235 Taiwan (R.O.C)
Tel:	+886-(2) 8226-3990
Fax:	+886-(2) 8226-3992
Email:	support@supermicro.com.tw
Web Site:	www.supermicro.com.tw

Table of Contents

Preface

About This Motherboard iii
Manual Organization iii
Conventions Used in the Manual iv
Contacting Supermicro v

Chapter 1 Introduction

1-1 Overview 1-1
Checklist 1-1
Motherboard Features 1-7
1-2 Chipset Overview 1-10
Intel C612 Chipset Features 1-10
1-3 Special Features 1-11
Recovery from AC Power Loss 1-11
1-4 PC Health Monitoring 1-11
Fan Status Monitor with Firmware Control 1-11
Environmental Temperature Control 1-11
System Resource Alert 1-12
1-5 ACPI Features 1-12
Slow Blinking LED for Suspend-State Indicator 1-12
1-6 Power Supply 1-12

Chapter 2 Installation

2-1 Static-Sensitive Devices 2-1
Precautions 2-1
Unpacking 2-1
2-2 Motherboard Installation 2-2
Tools Needed 2-2
Location of Mounting Holes 2-2
Installing the Motherboard 2-3
2-3 Processor and Heatsink Installation 2-4
Opening the LGA2011 Socket 2-4
Installing the LGA2011 Processor 2-6
Installing a Passive CPU Heatsink 2-8
Removing the Heatsink 2-9
2-4 Installing DDR4 Memory
2-10
DIMM Installation 2-10
Removing Memory Modules 2-10

Memory Support....2-11
Memory Population Guidelines....2-11
Memory Population Guidelines....2-12
2-5 Connectors/IO Ports....2-13
Motherboard I/O Backpanel....2-13
Universal Serial Bus (USB)....2-14
Ethernet Ports (LAN1/LAN2)....2-15
IPMI Port (IPMI)....2-15
Serial Ports....2-15
VGA Connector (VGA)....2-16
Unit Identifier Switch (UID)....2-16
Front Control Panel....2-17
Front Control Panel Pin Definitions....2-18
Power LED....2-18
HDD LED....2-18
Power Fail LED....2-18
NIC1/NIC2 (LAN1/LAN2)....2-19
Overheat (OH)/Fan Fail/Unit ID LED....2-19
NMI Button....2-20
Reset Button....2-20
Power Button....2-20
2-6 Connecting Cables & Optional Devices....2-21
Main PWR (JPW1) & GPU PWR Connectors (JPW2, JPW3)....2-21
Fan Headers (FAN1~4, FANA~D)....2-22
Chassis Intrusion (JL1)....2-22
Legacy Wake-On-LAN Header (JSTBY1)....2-23
System Management Bus (JIPMB1)....2-23
Power Supply I2C (JPI2C1)....2-24
DOM PWR Connector (JSD1/JSD2)....2-24
I-SGPIO1/I-SGPIO2/S-SGPIO....2-25
TPM Header (JTPM1)....2-25
Overheat/Fan Fail LED (JOH1)....2-26
Speaker (JD1)....2-26
Internal Buzzer (SP1)....2-27
2-7 Jumper Settings....2-28
Explanation of Jumpers....2-28
LAN Port Enable/Disable (JPL1)....2-28
Clear CMOS (JBT1)....2-29
PCI Slot SMB Enable (JI2C1/JI2C2)....2-29

Watch Dog Reset (JWD1) 2-30
VGA Enable (JPG1) 2-30
BMC Enable/Disable (JPB1) 2-31
Manufacturer Mode Select (JPME2) 2-31
BIOS Recovery (JBR1) 2-32
I²C Bus for VRM 2-32
2-8 Onboard Indicators 2-33
LAN Port LEDs 2-33
IPMI Heartbeat LED (LEDM1) 2-33
Unit Identification LED (LE1) 2-34
Onboard Power LED (LE2) 2-34
2-9 SATA Connections 2-35
SATA/SAS Connections 2-35

Chapter 3 Troubleshooting

3-1 Troubleshooting Procedures 3-1
Before Power On 3-1
No Power 3-1
No Video 3-2
Memory Errors 3-2
When You Lose the System's Setup Configuration 3-2
3-2 Technical Support Procedures 3-3
3-3 Frequently Asked Questions 3-4
3-4 Battery Removal and Installation 3-6
Battery Removal 3-6
Proper Battery Disposal 3-6
Battery Installation 3-6
3-5 Returning Merchandise for Service 3-7

Chapter 4 BIOS

4-1 Introduction 4-1
Starting BIOS Setup Utility 4-1
How To Change the Configuration Data 4-1
How to Start the Setup Utility 4-2
4-2 Main Setup 4-2
The following Main menu items will be displayed: 4-2
System Date/System Time 4-3
Supermicro X10SRG-F 4-3
BIOS Version 4-3
Build Date 4-3
Memory Information 4-3

Total Memory 4-3
Memory Speed 4-3
4-3 Advanced Setup Configurations 4-4
▶Boot Feature 4-4
Quiet Boot 4-4
AddOn ROM Display Mode 4-4
Bootup Num-Lock 4-5
Wait For 'F1' If Error 4-5
INT19 (Interrupt 19) Trap Response 4-5
Re-try Boot 4-5
Power Configuration 4-5
DeepSx Power Policies 4-5
GP27 Wake From DeepSx 4-5
Watch Dog Function 4-6
Power Button Function 4-6
Restore on AC Power Loss 4-6
▶CPU Configuration 4-6
CPU1/CPU2 Configuration 4-6
Clock Spread Spectrum 4-7
Hyper-Threading (ALL) 4-7
Cores Enabled 4-7
Execute Disable Bit (Available if supported by the OS & the CPU) 4-7
PPIN Control 4-7
Hardware Prefetcher (Available when supported by the CPU) 4-7
Adjacent Cache Line Prefetch (Available when supported by the CPU) ... 4-7
DCU Streamer Prefetcher (Available when supported by the CPU) 4-8
DCU IP Prefetcher 4-8
Direct Cache Access (DCA) 4-8
DCA Prefetch Delay 4-8
X2APIC (Extended Advanced Programmable Interrupt Controller) 4-8
AES-NI 4-8
Intel Virtualization Technology 4-8
▶Advanced Power Management Configuration 4-9
▶Chipset Configuration 4-11
▶North Bridge 4-11
▶IIO Configuration 4-11
▶ Intel VT for Directed I/O (VT-d) 4-12
▶QPI (Quick Path Interconnect) Configuration 4-12
COD Enable 4-13

▶South Bridge 4-15
Legacy USB Support 4-15
XHCI Hand-Off 4-15
EHCI Hand-Off 4-16
Port 60/64 Emulation 4-16
USB 3.0 Support 4-16
EHCI1 4-16
EHCI2 4-16
XHCI Pre-Boot Driver 4-16
▶SATA Configuration 4-16
SATA Controller 4-16
Configure SATA as 4-17
▶sSATA Configuration 4-19
sSATA Controller 4-19
Configure sSATA as 4-19
▶Server ME (Management Engine) Configuration 4-20
▶PCIe/PCI/PnP Configuration 4-21
The following PCI information will be displayed: 4-21
PCI Latency Timer 4-21
PCI-X Latency Timer 4-21
PERR# Generation 4-21
SERR# Generation 4-21
PCI PERR/SERR Support 4-21
Above 4G Decoding (Available if the system supports 64-bit PCI decoding) 4-21
SR-IOV Support (Available if the system supports Single-Root Virtualization) 4-22
Maximum Payload 4-22
Maximum Read Request 4-22
ASPM Support 4-22
MMIOHBase 4-22
MMIO High Size 4-22
RSC-R1UFF-E16 CPU1 SLOT1 PCI-E x16 OPROM 4-22
RSC-R1UFF-E16 CPU1 SLOT2 PCI-E x16 OPROM 4-22
Onboard LAN Option ROM Type 4-23
Onboard LAN1 Option ROM 4-23
Onboard LAN2 Option ROM 4-23
Load Onboard SAS Option ROM 4-23
Onboard Video Option ROM 4-23
VGA Priority 4-23

Network Stack 4-23
Ipv4 PXE Support 4-23
Ipv6 PXE Support 4-23
PXE Boot Wait Time 4-23
Media Detect Time 4-24
▶Serial Port 1 Configuration 4-24
Serial Port 1 4-24
Device Settings 4-24
Change Port 1 Settings 4-24
▶Serial Port 2 Configuration 4-24
Serial Port 2 4-24
Device Settings 4-24
Change Port 2 Settings 4-25
Serial Port 2 Attribute 4-25
▶Serial Port Console Redirection 4-25
COM 1 Console Redirection 4-25
▶COM1 Console Redirection 4-25
▶SOL/COM2 Console Redirection Settings 4-27
Serial Port for Out-of-Band Management/Windows Emergency Management Services (EMS) 4-29
EMS (Emergency Management Services) Console Redirection 4-29
▶EMS Console Redirection Settings 4-29
▶ACPI Settings 4-31
Use this feature to configure Advanced Configuration and Power Interface (ACPI) power management settings for your system. 4-31
WHEA Support 4-31
High Precision Timer 4-31
NUMA Support (Available when the OS supports this feature) 4-31
PCI AER Support 4-31
▶Trusted Computing (Available when a TPM device is installed and detected by the BIOS) 4-32
Configuration 4-32
Security Device Support 4-32
TPM State 4-32
Pending Operation 4-32
Current Status Information 4-32
▶Intel TXT (LT-SX) Confirguration 4-32
Intel® I350 Gigabit Network Connections 4-34
▶NIC Configuration 4-34
Blink LEDs 4-34

PORT CONFIGURATION INFORMATION 4-34
▶Intel RSTe SATA Controller 4-35
SATA RAID Legacy OpROM 4-35
UEFI SATA RAID 4-35
4-4 Event Logs 4-36
▶Change SMBIOS Event Log Settings 4-36
Enabling/Disabling Options 4-36
SMBIOS Event Log 4-36
Runtime Error Logging Support 4-36
Memory Corrected Error Enabling (Available when the item above-Runtime Error Logging Support is set to Enable) 4-36
Memory Correctable Error Threshold 4-36
PCI-Ex (PCI-Express) Error Enable 4-36
Erasing Settings 4-37
Erase Event Log 4-37
When Log is Full 4-37
SMBIOS Event Log Standard Settings 4-37
Log System Boot Event 4-37
MECI (Multiple Event Count Increment) 4-37
METW (Multiple Event Count Time Window) 4-37
4-5 IPMI 4-38
IPMI Firmware Revision 4-38
IPMI Status 4-38
▶System Event Log 4-38
Enabling/Disabling Options 4-38
SEL Components 4-38
Erasing Settings 4-38
Erase SEL 4-38
When SEL is Full 4-39
▶BMC Network Configuration 4-39
IPMI LAN Selection 4-39
IPMI Network Link Status 4-39
Update IPMI LAN Configuration 4-39
Configuration Address Source 4-39
4-6 Security Settings 4-41
Password Check 4-41
Administrator Password 4-41
4-7 Boot Settings 4-42
Setup Prompt Timeout 4-42

Boot Mode Select 4-42
Fixed Boot Order Priorities 4-42
Add New Boot Option 4-43
Boot Option File Path 4-43
▶Delete Boot Option 4-43
▶Hard Disk Drive BBS Priorities 4-43
▶Network Drive BBS Priorities 4-44
▶USB Key Drive BBS Priorities 4-44
▶UEFI USB Key Drive BBS Priorities 4-44
▶UEFI Application Boot Priorities 4-44

4-8 Save & Exit 4-45
Discard Changes and Exit 4-45
Save Changes and Reset 4-45
Save Options 4-46
Save Changes 4-46
Discard Changes 4-46
Restore Defaults 4-46
Save As User Defaults 4-46
Restore User Defaults 4-46
Boot Override 4-46

Appendix A BIOS Error Beep Codes

A-1 BIOS Error Beep Codes A-1

Appendix B Software Installation Instructions

B-1 Installing Software Programs B-1
B-2 Installing SuperDoctor® 5 ..... B-2

Appendix C UEFI BIOS Recovery Instructions

An Overview to the UEFI BIOS C-1
How to Recover the UEFI BIOS Image (-the Main BIOS Block) C-1
To Recover the Main BIOS Block Using a USB-Attached Device C-1

Appendix D Dual Boot Block on Grantley Platforms

Overview D-1
Before Startup D-1
When to Use Dual Boot Block D-1
How to Use Dual Boot Block D-1
D-1 IPMI GUI Browser D-2
D-2 IPMI Command Sets D-7
User Approach D-9

Notes

Chapter 1

Introduction

1-1 Overview

Checklist

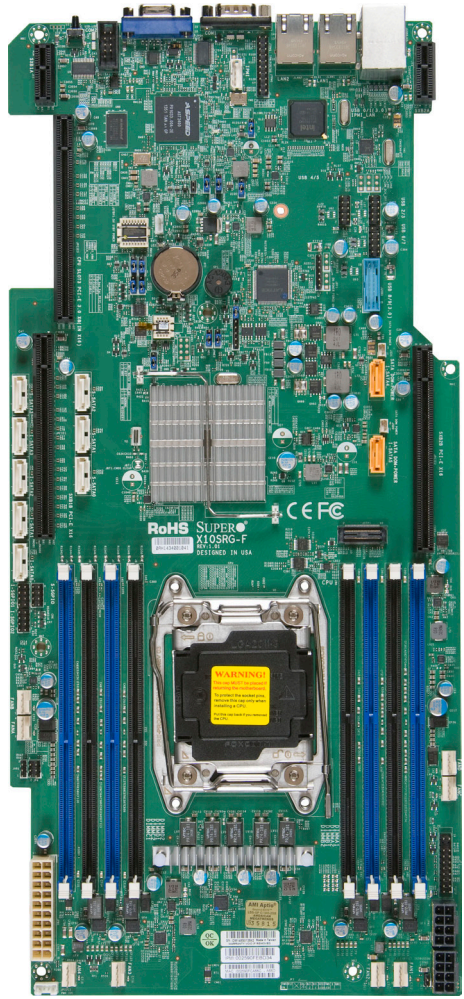
Congratulations on purchasing your computer motherboard from an acknowledged leader in the industry. Supermicro boards are designed with the utmost attention to detail to provide you with the highest standards in quality and performance.

Please check that the following items have all been included with your motherboard. If anything listed here is damaged or missing, contact your retailer.

The following items are included in the retail box:

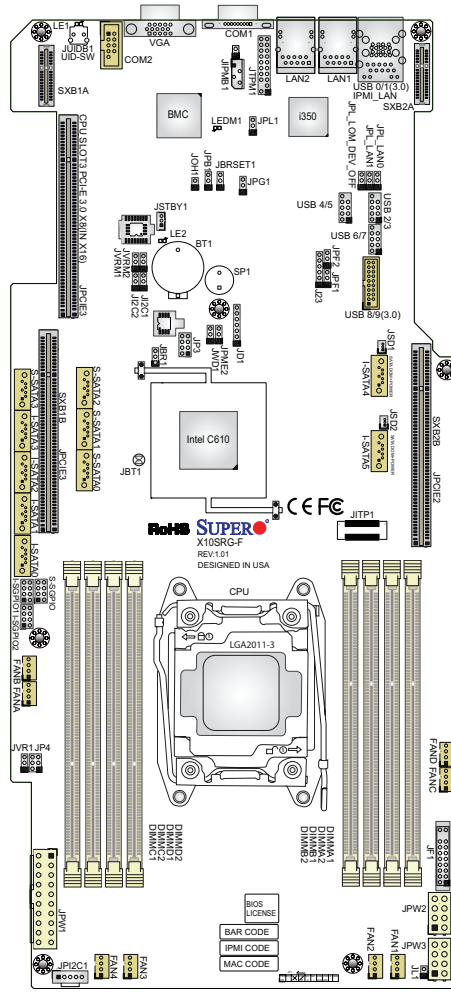
- One (1) Supermicro Mainboard
- Six (6) SATA cables
- One (1) I/O shield
- One (1) User's Manual

SUPERMICRO X10SRG-F Motherboard Image



Note: All graphics shown in this manual were based upon the latest PCB Revision available at the time of publishing of the manual. The motherboard you've received may or may not look exactly the same as the graphics shown in this manual.

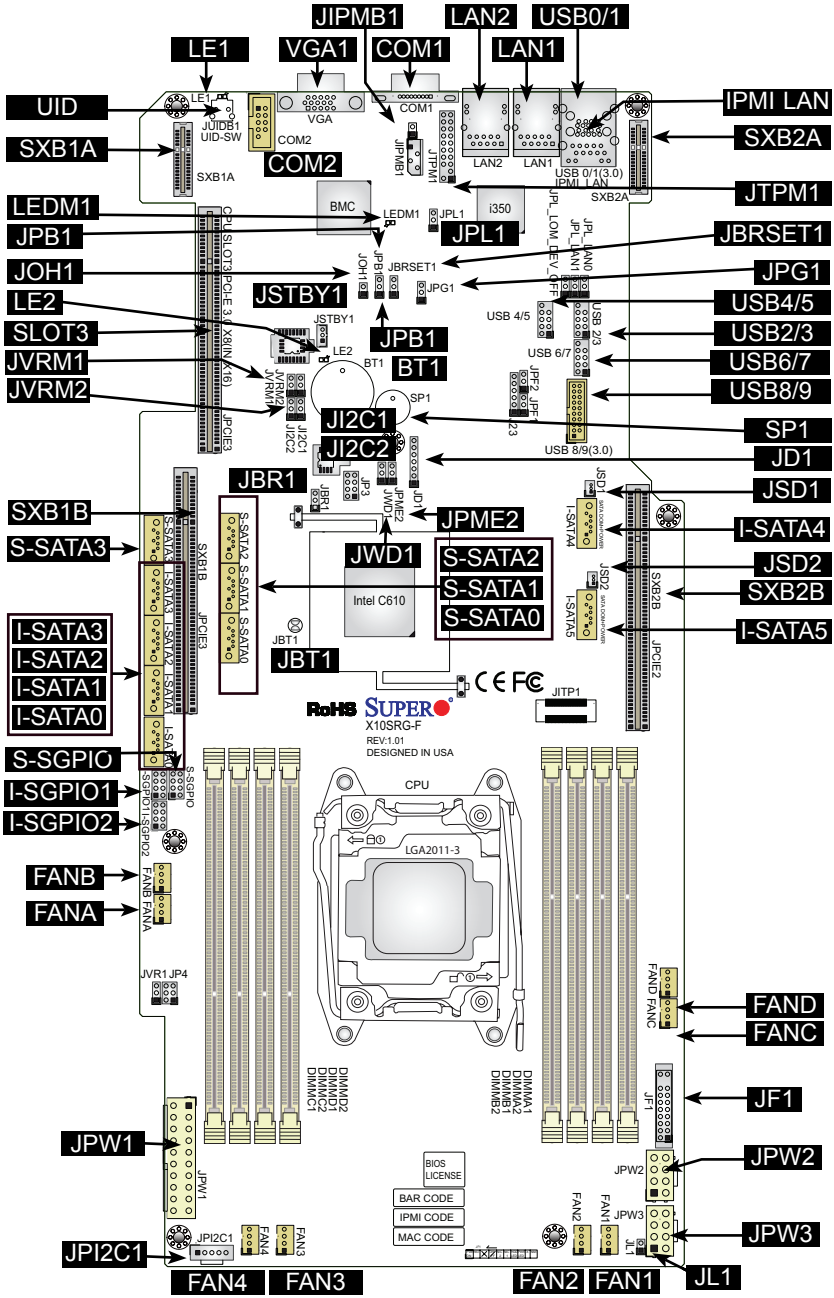
X10SRG-F Motherboard Layout



Important Notes to the User

- See Chapter 2 for detailed information on jumpers, I/O ports and JF1 front panel connections.
- "■" indicates the location of "Pin 1".
- Jumpers not indicated are for testing only.

X10SRG-F Motherboard Quick Reference



X10SRG-F Motherboard Connectors	
Connector	**Description**
COM1/COM2	COM1: Rear Serial Port, COM2: Serial Header
FAN1~FAN4	System/CPU Fan Connectors
FAN A~FAN D	I/O Fan Connectors
JD1	Speaker/Buzzer (Pins 1-3: Power LED, Pins 4-7: Speaker)
JF1	Front Panel Control Header
JI2C1	Power Supply SMBus I2C Header
JIPMB1	4-pin External BMC I2C Header
JL1	Chassis Intrusion Header
JOH1	Overheat LED/Fan Fail LED Header
JPW1	20-pin Main Power Connector
JPW2	8-pin Secondary Power Connector for the GPU
JPW3	8-pin 3rd Power Connector for the GPU (use as needed)
JSD1/JSD2	SATA Disk On Module (DOM) Power Connector
JSTBY1	Legacy Wake On LAN Header
JTPM1	Trusted Platform Module (TPM) Header
LAN1/LAN2	Gigabit RJ45 Ports
I-SATA0~I-SATA5	SATA 3.0 Connectors via Intel (6Gb/s)
S-SATA0~S-SATA3	SATA 3.0 Connectors via PCH (6Gb/s)
SLOT3	Slot for Supemicro riser card P/N RSC-R1UG-UR
SP1	Internal Speaker/Buzzer
SXB1A, SXB1B	Slot for Supermicro riser card P/N RSC-R1UG-E16-UP, RSC-R1UG-2E8G-UP
SXB2A, SXB2B	Slot for Supermicro riser card P/N RSC-R1UG-E16R-UP, RSC-R1UG-2E8GR-UP
I-SGPIO1, I-SGPIO2, S-SGPIO	Serial Link General Purpose I/O Headers (5V Gen1/Gen 2)
UID SW	Unit ID Switch
USB0, USB1	Rear USB Ports
USB2/3, USB4/5, USB6/7, USB8/9	Internal USB Headers
VGA1	Rear VGA Port

X10SRG-F Motherboard Jumpers		
Jumper	**Description**	Default
JBR1	BIOS Recovery	Pins 1-2 (Normal)
JBRSET1	FIQ Request	Pins 1-2 (Normal)
JBT1	CMOS Clear	See Chapter 2
JI2C1/JI2C2	SMB to PCI Slots	Pins 1-2 (Enabled)
JPB1	BMC Enable	Pins 1-2 (Enabled)
JPG1	Onboard VGA Enable	Pins 1-2 (Enabled)
JPL1	LAN1/LAN2 Enable/Disable	Pins 1-2 (Enabled)
JPME2	Intel Manufacturing Mode Select	Pins 1-2 (Enabled)
JVRM1	VRM SMB Clock (to BMC or PCH)	Pins 1-2 (BMC, Normal)
JVRM2	VRM SMB Data (to BMC or PCH)	Pins 1-2 (BMC, Normal)
JWD1	Watch Dog Timer Reset	Pins 1-2 (Reset)

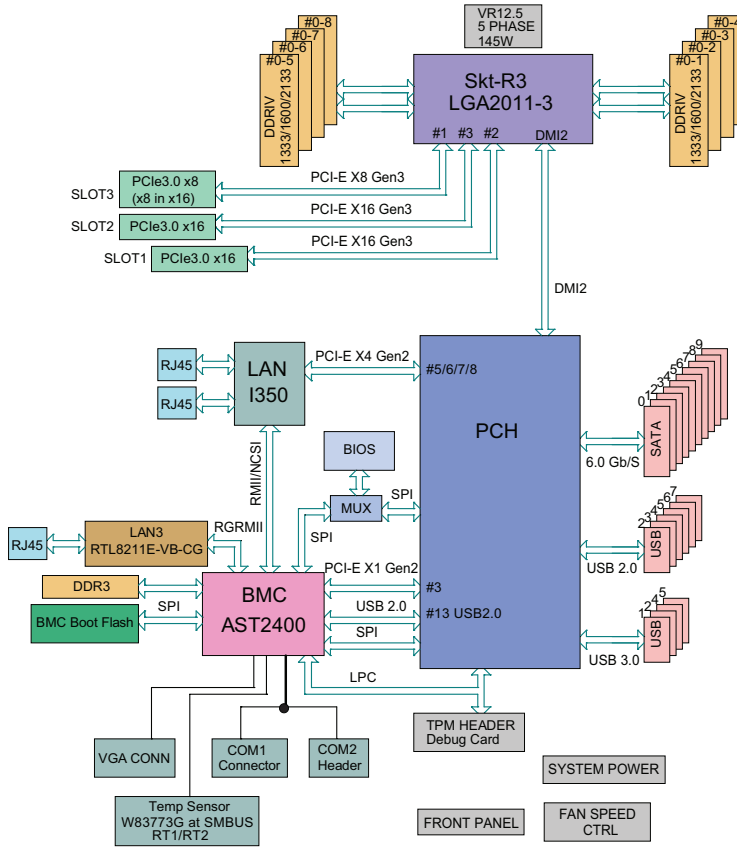
X10SRG-F Motherboard LED Indicators			
LED	**Description**	**Color/State**	**Status**
LEDM1	IPMI Heartbeart	Green: Blinking	IPMI Normal
LE2	Power On LED	Green: Solid On	System is On/Running
LE1	Unit ID LED	Blue: Solid On	Unit ID Switch is On

Motherboard Features

CPU	Single Intel® E5-2600/1600 Series Processor (LGA 2011 Socket 3)	
Memory	Eight (8) DIMM slots support up to 256GB RDIMM or 512 LRDIMM of DDR4 ECC memory at 1333/1600/2133 MHz.	
	DIMM sizes	
	RDIMM	2GB, 4GB, 8GB, 16GB, 32GB, 64GB
Chipset	Intel® C612 Express Chipset	
Expansion	**PCI Slots**	
	Two (2) PCI-Express 3.0 x16 in x16 slots One (1) PCI-Express 3.0 x8 in x16 slot	
Network Connections	**Integrated LAN**	
	Two (2) RJ45 LAN Ports One (1) BMC LAN Port	
I/O Devices	**SATA Connections**	
	SATA 3.0 (6Gb/s)	Ten (10) SATA3 ports
		• AHCI controller supports six (6) SATA3 drives compatible with RAID 0, 1, 5, 10.
		• sSATA controller supports four (4) SATA3 drives compatible with RAID 0, 1, 5, 10.
		• RAID array and volume(s) cannot span across the two (AHCI and sSATA) controllers.
	SATA DOM	Two (2) SATA DOM Ports (SATA 4/5)
	USB Devices	
	Four (4) USB 3.0 Ports (2 rear, 2 header) Five (5) USB 2.0 Ports (4 via header, 1 eUSB)	
	Serial (COM) Ports	
	One (1) rear port, One (1) header	
BIOS	128 Mb SPI AMI BIOS® SM Flash BIOS	
	Plug & Play, DMI 2.3, ACPI 1.0/2.0/3.0, USB Keyboard and SMBIOS 2.5	

Power Configuration	ACPI/ACPM Power Management
	CPU Fan Auto-off in Sleep Mode
	Power-on mode for AC power recovery
PC Health Monitoring	**CPU & Chassis Monitoring**
	Onboard voltage monitors for CPU core, +1.05V, +3.3V, +5V, +12V, +3.3V Stdby, +5V Stdby, VBAT, Memory, Chipset
	CPU 5-phase switching voltage regulator
	CPU/System overheat LED and Thermal Control
	CPU Thermal Trip support
	CPU & Chassis Environment Monitor
	Fan Control
	Fan status monitoring with firmware 4-pin (Pulse Width Modulation) fan speed control
	Low noise fan speed control
System Management	PECI (Platform Environment Configuration Interface) 3.0 support
	System resource alert via SuperDoctor® 5
	SuperDoctor® 5, Watch Dog, NMI
	Chassis Intrusion header and detection
Other	ROHS (Full Compliance, Lead Free)
	TPM 1.2 on board
	DOM (Disk on Module) Power Connector Support
	FCC B, WHQL
Dimensions	7.71" x 16.64"

X10SRG-F Motherboard Block Diagram



System Block Diagram

Note: This is a general block diagram and may not exactly represent the features on your motherboard. See the Motherboard Features pages for the actual specifications of each motherboard.

1-2 Chipset Overview

The Intel® C612 series is a single chip solution that is designed for dedicated servers and workstations. It supports high-speed SATA and advanced requirements for Intel® Xeon platforms.

Intel C612 Chipset Features

- Direct Media Interface (up 5 Gt/s transfer, Full Duplex)
- Intel® Matrix Storage Technology and Intel Rapid Storage Technology
- Intel® I/O Virtualization (VT-d) Support
- Intel® Trusted Execution Technology Support
- PCI Express 2.0 Interface (up to 5.0 GT/s)
- PCI Express 3.0 Interface (up to 8.0 GT/s)
- SATA 3.0 ports (up to 6Gb/s)
- Advanced Host Controller Interface (AHCI)

1-3 Special Features

Recovery from AC Power Loss

Basic I/O System (BIOS) provides a setting for you to determine how the system will respond when AC power is lost and then restored to the system. You can choose for the system to remain powered off (in which case you must press the power switch to turn it back on), or for it to automatically return to a power-on state. See the Advanced BIOS Setup section to change this setting. The default setting is **Last State**.

1-4 PC Health Monitoring

This section describes the PC health monitoring features of the board. All have an onboard System Hardware Monitoring chip that supports PC health monitoring. An onboard voltage monitor will scan these onboard voltages continuously: CPU core, +1.05V, +3.3V, +5V, +12V, +3.3V Stdby, +5V Stdby, VBAT, Memory and Chipset. Once a voltage becomes unstable, a warning is given, or an error message is sent to the screen. The user can adjust the voltage thresholds to define the sensitivity of the voltage monitor.

Fan Status Monitor with Firmware Control

PC health monitoring in the BIOS can check the RPM status of the cooling fans. The onboard CPU and chassis fans are controlled by Thermal Management via BIOS (under the Hardware Monitoring section in the Advanced Setting).

Environmental Temperature Control

The thermal control sensor monitors the CPU temperature in real time and will turn on the thermal control fan whenever the CPU temperature exceeds a user-defined threshold. The overheat circuitry runs independently from the CPU. Once the thermal sensor detects that the CPU temperature is too high, it will automatically turn on the thermal fans to prevent the CPU from overheating. The onboard chassis thermal circuitry can monitor the overall system temperature and alert the user when the chassis temperature is too high.

Note: To avoid possible system overheating, please be sure to provide adequate airflow to your system.

System Resource Alert

This feature is available when the system is used with SuperDoctor® 5 in the Windows® OS environment or used with SuperDoctor II in Linux. SuperDoctor is used to notify the user of certain system events. For example, you can also configure SuperDoctor to provide you with warnings when the system temperature, CPU temperatures, voltages and fan speeds go beyond predefined thresholds.

1-5 ACPI Features

ACPI stands for Advanced Configuration and Power Interface. The ACPI specification defines a flexible and abstract hardware interface that provides a standard way to integrate power management features throughout a PC system, including its hardware, operating system and application software. This enables the system to automatically turn on and off peripherals such as CD-ROMs, network cards, hard disk drives and printers.

In addition to enabling operating system-directed power management, ACPI also provides a generic system event mechanism for Plug and Play, and an operating system-independent interface for configuration control. ACPI leverages the Plug and Play BIOS data structures, while providing a processor architecture-independent implementation that is compatible with the Microsoft® Windows® series of Operating Systems.

Slow Blinking LED for Suspend-State Indicator

When the CPU goes into a suspend state, the chassis power LED will start to blink to indicate that the CPU is in suspend mode. When the user presses any key, the CPU will "wake up", and the LED will automatically stop blinking and remain on.

1-6 Power Supply

As with all computer products, a stable power source is necessary for proper and reliable operation. It is even more important for processors that have high CPU clock rates.

This motherboard accommodates 20-pin power supplies. Although most power supplies generally meet the specifications required by the CPU, some are inadequate. In addition, the 12V 8-pin power connectors located at JPW2 and JPW3 are also required to ensure adequate power to the GPU Add-on card.

Warning: To prevent damage to the power supply or motherboard, please use a power supply that contains a 20-pin and an 8-pin power connectors. Failure in doing so will void the manufacturer warranty on your power supply and motherboard. It is

strongly recommended that you use a high quality power supply that meets ower supply Specifications 2.02 or above. It must also be SSI compliant. (For more information, please refer to the web site at http://www.ssiforum.org/). Additionally, in areas where noisy power transmission is present, you may choose to install a line filter to shield the computer from noise. It is recommended that you also install a power surge protector to help avoid problems caused by power surges.

Notes

Chapter 2

Installation

2-1 Static-Sensitive Devices

Electrostatic-Discharge (ESD) can damage electronic components. To avoid damaging your system board, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing the board from the antistatic bag.
- Handle the board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the motherboard and peripherals back into their antistatic bags when not in use.
- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the motherboard.
- Use only the correct type of onboard CMOS battery. Do not install the onboard battery upside down to avoid possible explosion.

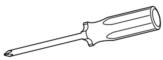
Unpacking

The motherboard is shipped in antistatic packaging to avoid static damage. When unpacking the board, make sure that the person handling it is static protected.

2-2 Motherboard Installation

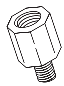
All motherboards have standard mounting holes to fit different types of chassis. Make sure that the locations of all the mounting holes for both motherboard and chassis match. Although a chassis may have both plastic and metal mounting fasteners, metal ones are highly recommended because they ground the motherboard to the chassis. Make sure that the metal standoffs click in or are screwed in tightly. Then use a screwdriver to secure the motherboard onto the motherboard tray.

Tools Needed

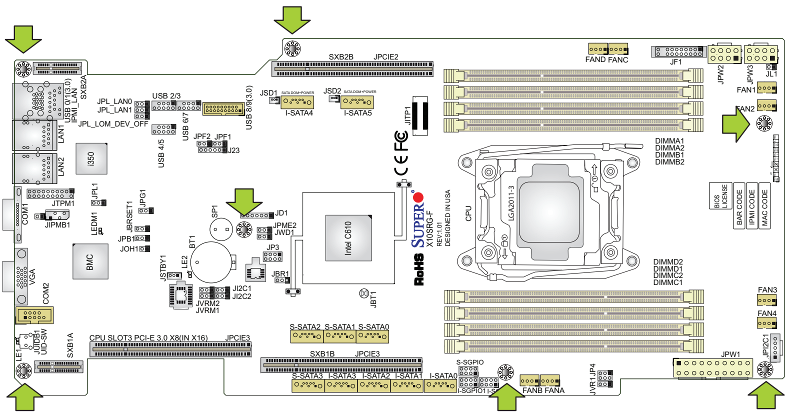


Philips Screwdriver

Philips Screws



Standoffs

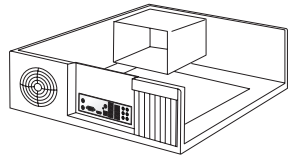


Location of Mounting Holes

Warning: 1) To prevent damage to the motherboard and its components, please do not use a force greater than 8 lb/inch on each mounting screw during motherboard installation. 2) Some components are very close to the mounting holes. Please take precautionary measures to avoid damaging these components when installing the motherboard to the chassis.

Installing the Motherboard

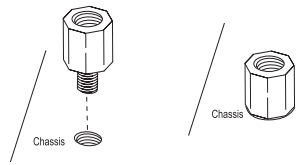
1. Install the I/O shield into the chassis.



2. Locate the mounting holes on the motherboard.

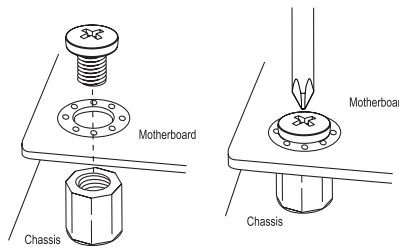
3. Locate the matching mounting holes on the chassis. Align the mounting holes on the motherboard against the mounting holes on the chassis.

4. Install standoffs in the chassis as needed.



5. Install the motherboard into the chassis carefully to avoid damaging motherboard components.

6. Using the Philips screwdriver, insert a Pan head #6 screw into a mounting hole on the motherboard and its matching mounting hole on the chassis.



7. Repeat Step 5 to insert #6 screws into all mounting holes.

8. Make sure that the motherboard is securely placed in the chassis.

Note: Images displayed are for illustration only. Your chassis or components might look different from those shown in this manual.

2-3 Processor and Heatsink Installation

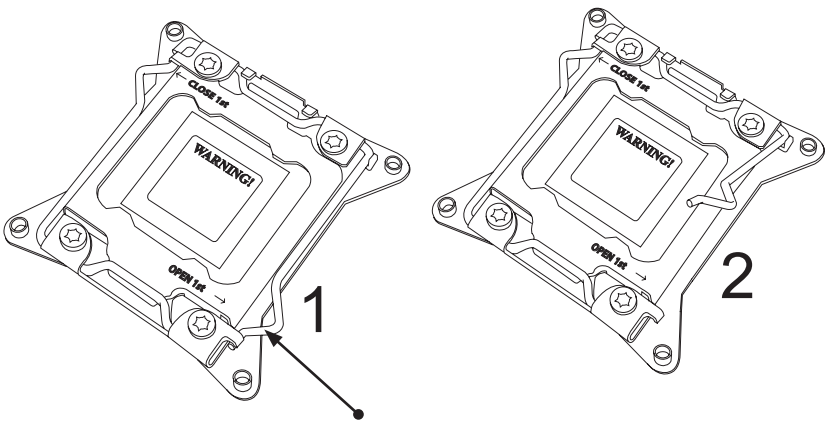
Warning: When handling the processor package, avoid placing direct pressure on the label area.

Notes:

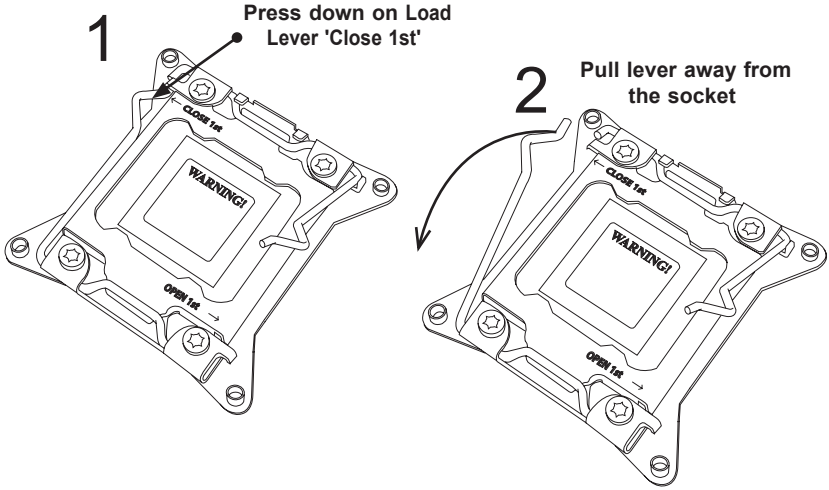
- Always connect the power cord last, and always remove it before adding, removing or changing any hardware components. Make sure that you install the processor into the CPU socket before you install the CPU heatsink.
- If you buy a CPU separately, make sure that you use an Intel-certified multi-directional heatsink only.
- Make sure to install the system board into the chassis before you install the CPU heatsink.
- When receiving a server board without a processor pre-installed, make sure that the plastic CPU socket cap is in place and none of the socket pins are bent; otherwise, contact your retailer immediately.
- Refer to the Supermicro website for updates on CPU support.

Opening the LGA2011 Socket

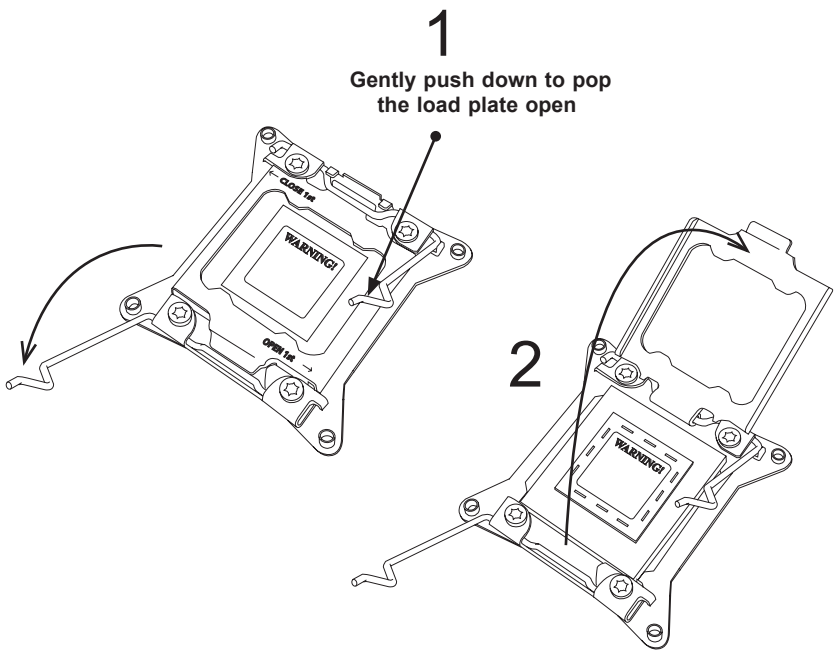
1. There are two load levers on the LGA2011 socket. To open the socket cover, first press and release the load lever labeled 'Open 1st'.



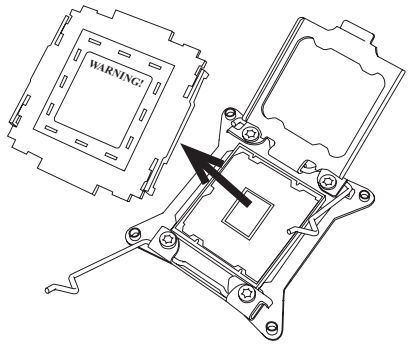
2. Press the second load lever labeled 'Close 1st' to release the load plate which covers the CPU socket from its locking position.



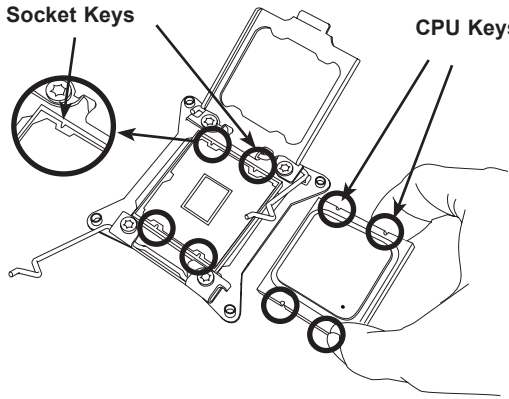
3. With the 'Close 1st' lever fully retracted, gently push down on the 'Open 1st' lever to open the load plate. Lift the load plate to open it completely.



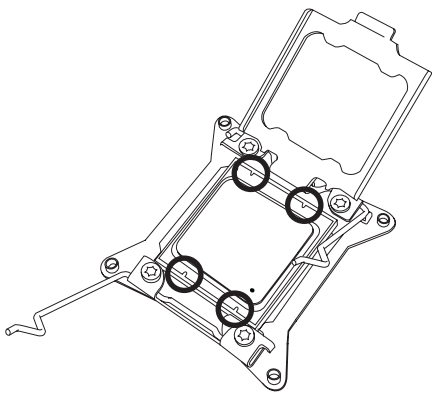
Installing the LGA2011 Processor



1. With the LGA 2011 socket open, remove the 'WARNING' plastic cap using your fingers.



2. Use your thumb and index finger to hold the CPU on its edges. Align the CPU keys (semi-circle cutouts) against the socket keys.



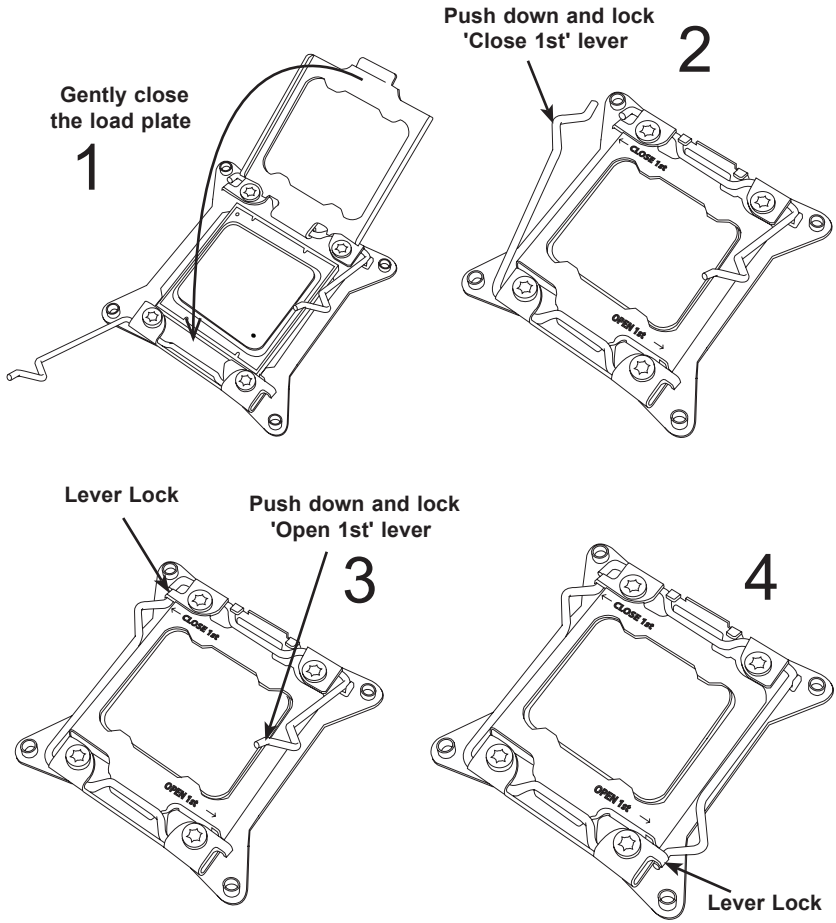
Warning: You can only install the CPU inside the socket in one direction. Make sure that it is properly inserted into the CPU socket before closing the load plate. If it doesn't close properly, do not force it as it may damage your CPU. Instead, open the load plate again and double-check that the CPU is aligned properly.

3. Once it is aligned, carefully lower the CPU straight down into the socket. (Do not drop the CPU on the socket. Do not move the CPU horizontally or vertically.

4. Do not rub the CPU against the surface or against any pins of the socket to avoid damaging the CPU or the socket.)

5. With the CPU inside the socket, inspect the four corners of the CPU to make sure that the CPU is properly installed.

6. To close and lock the socket, close the load plate with the CPU. Lock the 'Close 1st' lever first, then lock the 'Open 1st' lever second. Use your thumb to gently push the load levers down to the lever locks.



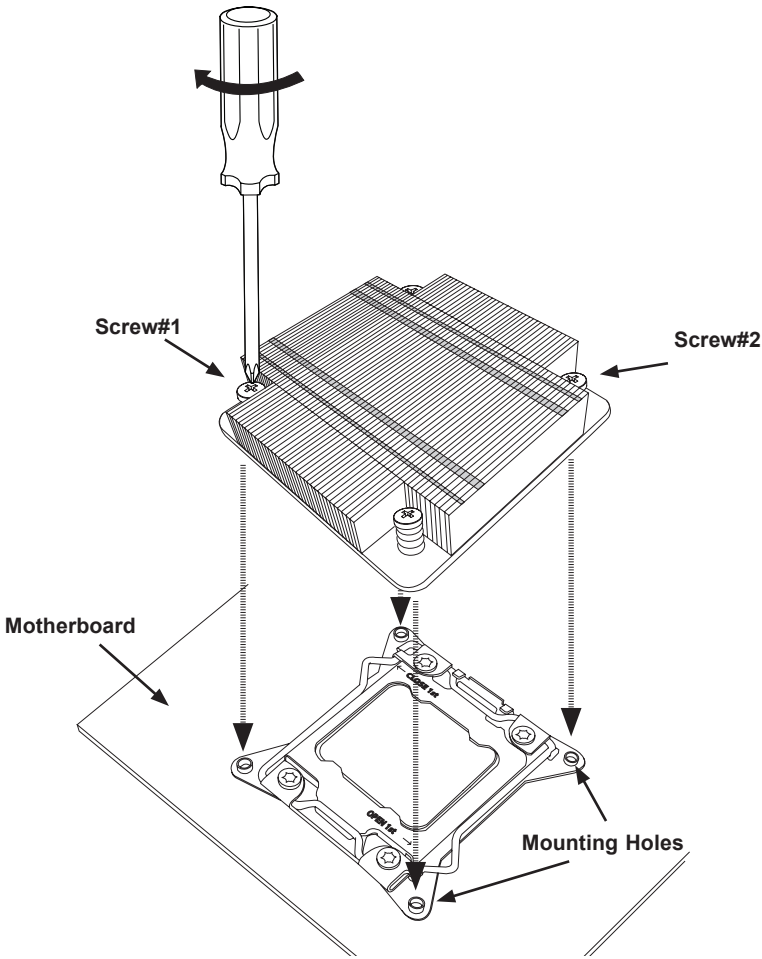
Installing a Passive CPU Heatsink

1. Do not apply any thermal grease to the heatsink or the CPU die -- the required amount has already been applied.

2. Place the heatsink on top of the CPU so that the four mounting holes are aligned with those on the Motherboard's and the Heatsink Bracket underneath.

3. Screw in two diagonal screws (i.e., the #1 and the #2 screws) until just snug (-do not over-tighten the screws to avoid possible damage to the CPU.)

4. Finish the installation by fully tightening all four screws.



Removing the Heatsink

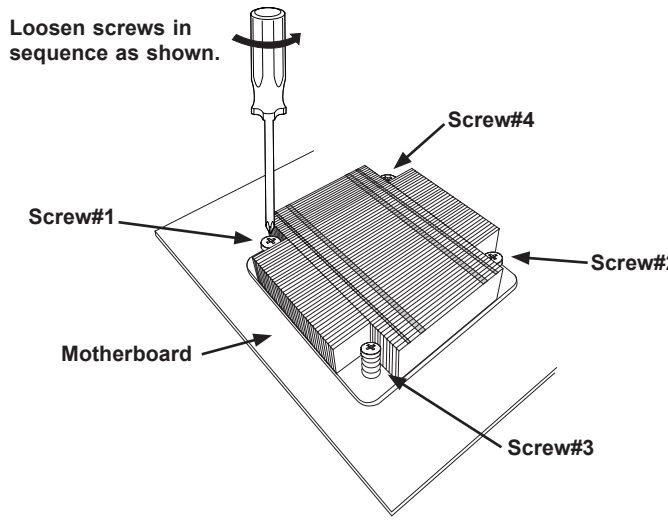
Warning: We do not recommend that the CPU or the heatsink be removed. However, if you do need to uninstall the heatsink, please follow the instructions below to prevent damage to the CPU or the CPU socket.

1. Unscrew the heatsink screws from the motherboard in the sequence as shown in the illustration below.

2. Gently wriggle the heatsink to loosen it from the CPU. (Do not use excessive force when wriggling the heatsink!)

3. Once the heatsink is loosened, remove the heatsink from the CPU socket.

4. Remove the used thermal grease and clean the surface of the CPU and the heatsink. Reapply the proper amount of thermal grease on the surface before reinstalling the heatsink.



2-4 Installing DDR4 Memory

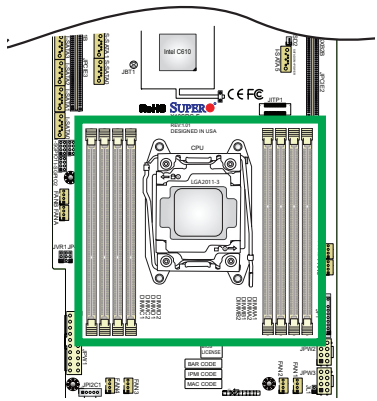
CAUTION

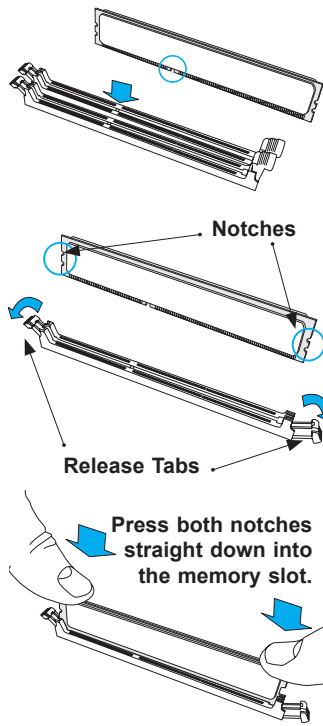
Exercise extreme care when installing or removing DIMM modules to prevent any possible damage.

Note: Check the Supermicro website for recommended memory modules.

DIMM Installation

1. Insert the desired number of DIMMs into the memory slots, starting with DIMMA1 (see the next page for the location). For best performance, please use the memory modules of the same type and speed in the same bank.
2. Push the release tabs outwards on both ends of the DIMM slot to unlock it.
3. Align the key of the DIMM module with the receptive point on the memory slot.
4. Align the notches on both ends of the module against the receptive points on the ends of the slot.
5. Use two thumbs together to press the notches on both ends of the module straight down into the slot until the module snaps into place.
6. Press the release tabs to the lock positions to secure the DIMM module into the slot.





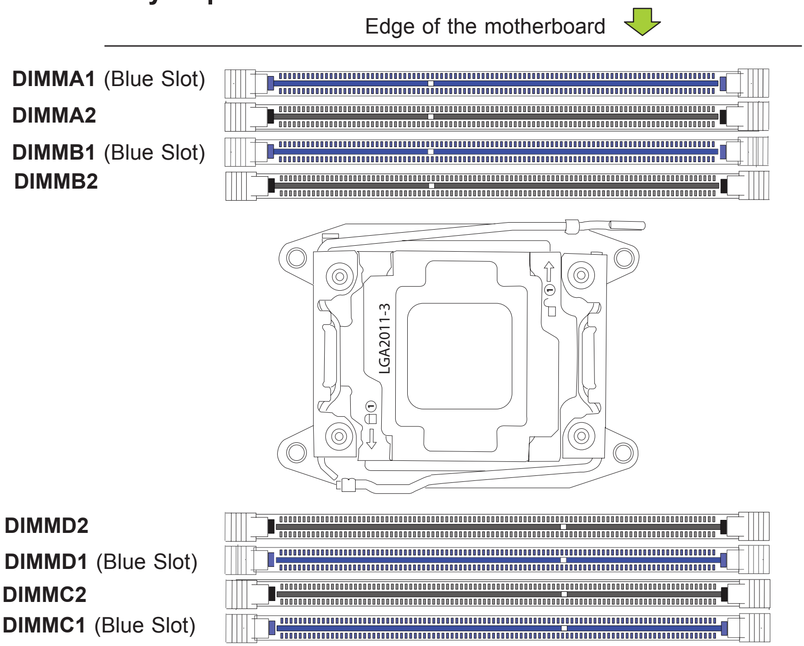
Removing Memory Modules

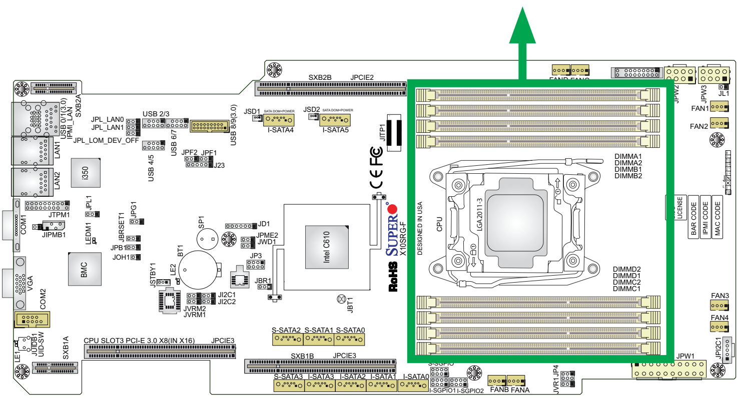
Reverse the steps above to remove the DIMM modules from the motherboard.

Memory Support

The X10SRG-F motherboard supports up to 256GB RDIMM or 512 LRDIMM of DDR4 ECC memory at 1333/1600/2133 MHz in eight (8) memory slots. Please refer to the illustration below and the table on the next page:

Memory Population Guidelines




SXB2B
JPCIE2
USB 0/1(3.0)
IPMI_LAN
SXB2A
JPL_LAN0
JPL_LAN1
JPL_LOM_DEV_OFF
USB 2/3
USB 6/7
USB 4/5
USB 8/9(3.0)
JSD1
I-SATA4
JSD2
I-SATA5
JITP1
LAN1
LAN2
i350
JPF2
JPF1
J23
JTPM1
COM1
JIPMB1
JPL1
LEDM1
JBRSET1
JPG1
JPB1
JOH1
BMC
SP1
BT1
JD1
JPME2
JWD1
JP3
JBR1
Intel C610
JSTBY1
LE2
JI2C1
JI2C2
JVRM2
JVRM1
JBT1
VGA
COM2
LE1
JUIDB1
UID-SW
SXB1A
CPU SLOT3 PCI-E 3.0 X8(IN X16)
JPCIE3
S-SATA2
S-SATA1
S-SATA0
SXB1B
S-SATA3
I-SATA3
I-SATA2
I-SATA1
I-SATA0
I-SGPIO1
I-SGPIO2
FANB
FANA
JVR1
JP4
X10SRG-F
DESIGNED IN USA
CPU
LGA2011-3
DIMMA1
DIMMA2
DIMMB1
DIMMB2
DIMMD2
DIMMD1
DIMMC2
DIMMC1
JPW2
JPW3
JL1
FAN1
FAN2
LICENSE
BAR CODE
IPMI CODE
MAC CODE
FAN3
FAN4
JPI2C1
JPW1

Memory Population Guidelines

When installing memory modules, the DIMM slots should be populated in the following order: DIMMA1, DIMMB1, DIMMC1, DIMMD1 then DIMMA2, DIMMB2, DIMMC2, DIMMD2.

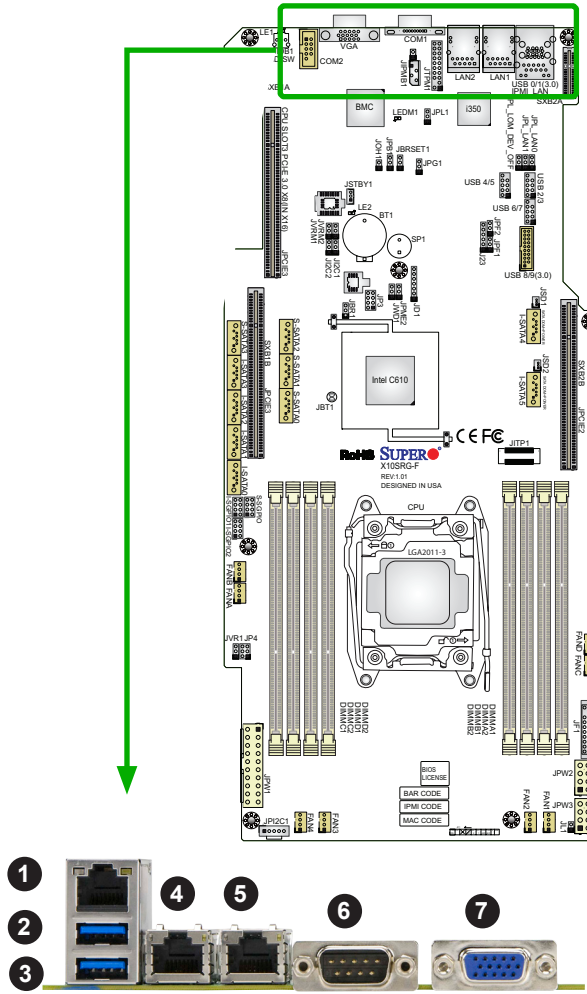
- Always use DDR4 DIMM modules of the same size, type and speed.
- Mixed DIMM speeds can be installed. However, all DIMMs will run at the speed of the slowest DIMM.
- The motherboard will support odd-numbered modules (1, 3, 5, or 7 modules installed). However, for best memory performance, install DIMM modules in pairs to activate memory interleaving.

Recommended Population (Balanced)								
DIMMA1	**DIMMB1**	**DIMMC1**	**DIMMD1**	**DIMMA2**	**DIMMB2**	**DIMMC2**	**DIMMD2**	**Total System Memory**
2GB	2GB							4GB
2GB	2GB	2GB	2GB					8GB
2GB	2GB	2GB	2GB	2GB	2GB			12GB
2GB	2GB	2GB	2GB	2GB	2GB	2GB	2GB	16GB
4GB	4GB							8GB
4GB	4GB	4GB	4GB					16GB
4GB	4GB	4GB	4GB	4GB	4GB			24GB
4GB	4GB	4GB	4GB	4GB	4GB	4GB	4GB	32GB
8GB	8GB							16GB
8GB	8GB	8GB	8GB					32GB
8GB	8GB	8GB	8GB	8GB	8GB			64GB
8GB	8GB	8GB	8GB	8GB	8GB	8GB	8GB	128GB
16GB	16GB							32GB
16GB	16GB	16GB	16GB					64GB
16GB	16GB	16GB	16GB	16GB	16GB			96GB
16GB	16GB	16GB	16GB	16GB	16GB	16GB	16GB	128GB
32GB	32GB							64GB
32GB	32GB	32GB	32GB					128GB
32GB	32GB	32GB	32GB	32GB	32GB			192GB
32GB	32GB	32GB	32GB	32GB	32GB	32GB	32GB	256GB

2-5 Connectors/IO Ports

The I/O ports are color coded in conformance with the industry standards. See the figure below for the colors and locations of the various I/O ports.

Motherboard I/O Backpanel



Motherboard I/O Backpanel	
1. IPMI LAN	5. LAN2
2. USB 3.0 Port 0	6. COM1
3. USB 3.0 Port 1	7. VGA
4. LAN1	

Universal Serial Bus (USB)

Two (2) Universal Serial Bus 3.0 ports are located on the I/O back panel. There are also six (6) USB 2.0 ports and two (2) USB 3.0 ports on the motherboard that may be used to provide front chassis access using USB cables (not included). See the tables below for pin definitions.

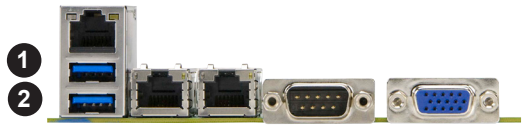
Front Panel USB (2.0) Header Pin Definitions

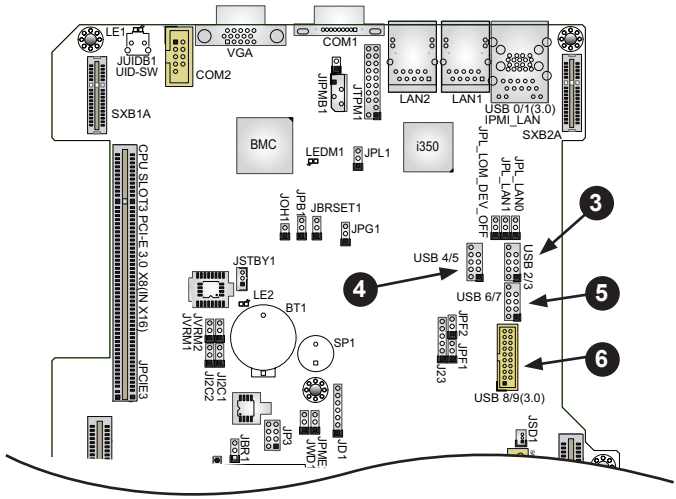
Pin #	Definition	Pin #	Definition
1	+5V	2	+5V
3	USB_PN2	4	USB_PN3
5	USB_PP2	6	USB_PP3
7	Ground	8	Ground
9	Key	10	Ground

Back Panel USB (3.0) Pin Definitions

Pin#	Pin#	Signal Name	Description
1	10	VBUS	Power
2	11	D-	USB 2.0 Differential Pair
3	12	D+	
4	13	Ground	Ground of PWR Return
5	14	StdA_SSRX-	SuperSpeed Receiver
6	15	StdA_SSRX+	Differential Pair
7	16	GND_DRAIN	Ground for Signal Return
8	17	StdA_SSTX-	SuperSpeed Transmitter
9	18	StdA_SSTX+	Differential Pair

1. Back Panel USB 3.0 (USB 0)
2. Back Panel USB 3.0 (USB 1)
3. Front Panel USB 2.0 (USB 2/3)
4. Front Panel USB 2.0 (USB 4/5)
5. Front Panel USB 2.0 (USB 6/7)
6. Front Panel USB 3.0 (USB 8/9)





Ethernet Ports (LAN1/LAN2)

Two Ethernet ports (LAN1/LAN2) are located next to the USB ports on the I/O backpanel. These ports provide networking connectivity with speeds up to 1Gb/s. Please see the table on the left for the pin definitions.

IPMI Port (IPMI)

In addition to the two Ethernet ports (LAN1/LAN2) this motherboard also features an IPMI port. This provides remote system management access through a standard IP protocol network.

Serial Ports

One COM port (COM1) is provided on the motherboard, located on the I/O backpanel. In addition to the COM port, a COM header (COM2) is located next to the VGA port. See the table on the right for pin definitions.

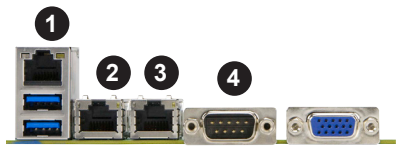
LAN Ports Pin Definition

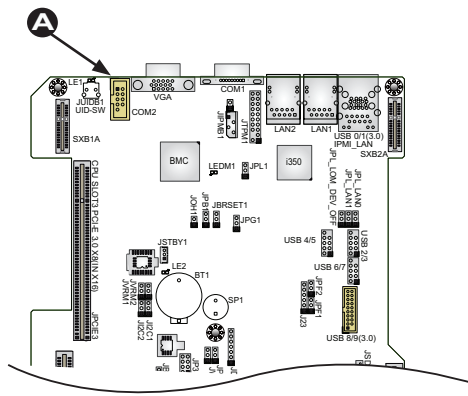
Pin#	Definition	Pin#	Definition
1	TD0-	10	SGND
2	TD0+	11	P3V3SB
3	TD1-	12	Act LED
4	TD1+	13	Link 100 LED (Green, +3V3SB)
5	TD2-	14	Link 1000 LED (Yellow, +3V3SB)
6	TD2+	15	Ground
7	TD3-	16	Ground
8	TD3+	17	Ground
9	P2V5SB	18	Ground

(NC: No Connection)

Serial Ports-COM1 Pin Definitions

Pin #	Definition	Pin #	Definition
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	Ground	10	N/A





1. IPMI Port
2. LAN1
3. LAN2
4. COM1
A. COM2

VGA Connector (VGA)

A Video (VGA/CRT) connector is located next to COM Port1 on the I/O backpanel. This connector is used to provide video and CRT display.

Unit Identifier Switch (UID)

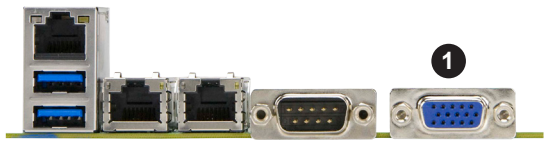
The Unit ID Switch is located near COM2. When the Unit ID Switch is turned on, both the blue rear Unit ID LED and front panel Unit LED on JF1 (if attached to the front Unit ID LED on the chassis, see page 2-19) will activate. Push the Unit ID Switch again to turn off both Indicators. These Unit ID LED Indicators provide easy identification of the system unit, when installed in a server cabinet for instance. See also Unit ID LED on page 2-19.

VGA Pin Definitions

Pin#	Definition	Pin#	Definition
1	Red	10	Ground
2	Green	11	NC
3	Blue	12	MS1: SDA (DDC Data)
4	NC	13	HSYNC
5	Ground	14	VSYSNC
6	Ground	15	MS3: SCL (DDC CLK)
7	Ground	16	Case
8	Ground	17	Case
9	5V		

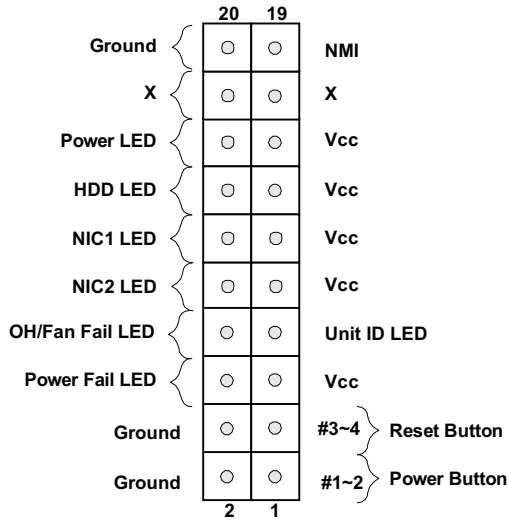
NC= No Connection

1. VGA

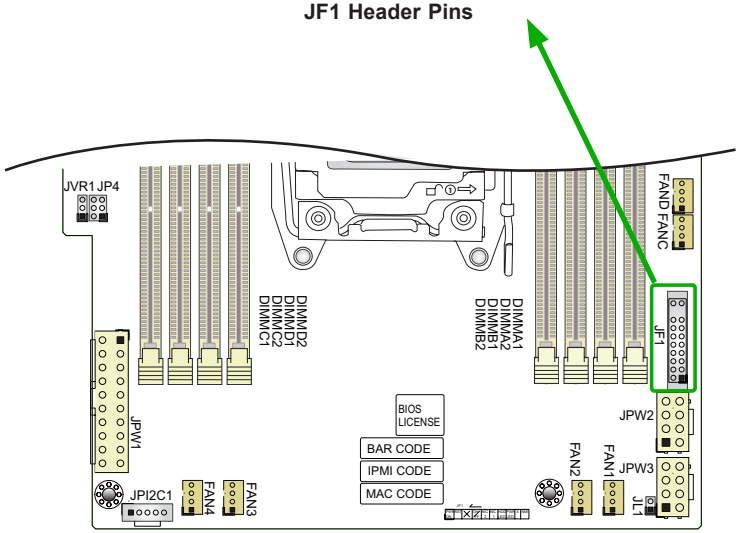


Front Control Panel

JF1 contains header pins for various buttons and indicators that are normally located on a control panel at the front of the chassis. These connectors are designed specifically for use with Supermicro server chassis. See the figure below for the descriptions of the various control panel buttons and LED indicators. Refer to the following section for descriptions and pin definitions.



JF1 Header Pins



Front Control Panel Pin Definitions

Power LED

The Power LED connection is located on pins 15 and 16 of JF1. Refer to the table on the right for pin definitions.

Power LED Pin Definitions (JF1)	
Pin#	Definition
15	+5V
16	Ground

Power LED Status	
State	Definition
Off	System Off
On	System Running

HDD LED

The HDD LED connection is located on pins 13 and 14 of JF1. Attach a cable here to indicate the status of HDD-related activities, including IDE, SATA activities. See the table on the right for pin definitions.

HDD LED Pin Definitions (JF1)	
Pin#	Definition
13	+5V
14	HD Active

HDD LED Status	
State	Definition
Off	No Activity
Blinking	HDD Busy

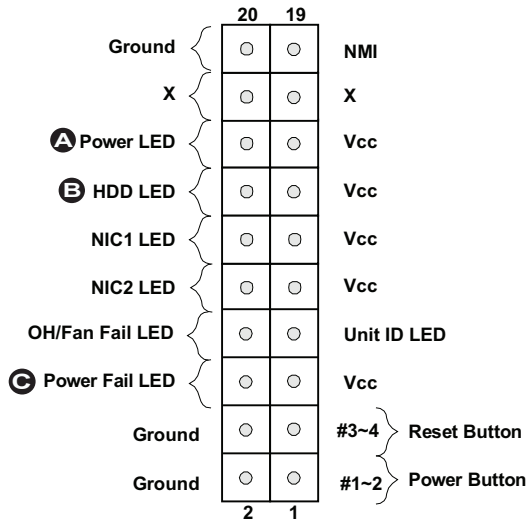
Power Fail LED

The Power Fail LED connection is located on pins 5 and 6 of JF1. Refer to the table on the right for pin definitions.

PWR Fail LED Pin Definitions (JF1)	
Pin#	Definition
5	Vcc
6	Ground

Power Fail LED Status	
State	Definition
Off	Normal
On	Power Failure

A. PWR LED
B. HDD LED
C. PWR Fail LED



NIC1/NIC2 (LAN1/LAN2)

The NIC (Network Interface Controller) LED connection for LAN port 1 is located on pins 11 and 12 of JF1, and the LED connection for LAN Port 2 is on Pins 9 and 10. NIC1 LED and NIC2 LED are 2-pin NIC LED headers. Attach NIC LED cables to NIC1 and NIC2 LED indicators to display network activity. Refer to the table on the right for pin definitions.

LAN1/LAN2 LED Pin Definitions (JF1)	
Pin#	Definition
9/11	Vcc
10/12	Ground

NIC LED Status	
State	Definition
Off	No Activity
Blinking	NIC Busy

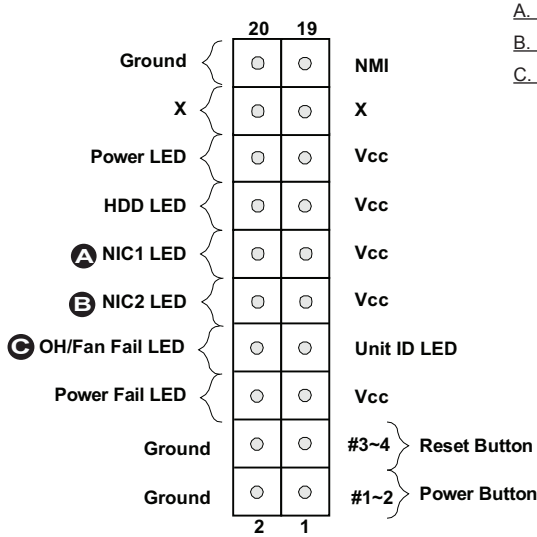
Overheat (OH)/Fan Fail/Unit ID LED

Connect an LED cable to pins 7 and 8 of the Front Control Panel to use the Unit ID LED, Overheat, and Fan Fail. Refer to the table on the right for pin definitions.

OH/Fan Fail/Blue UID LED Pin Definitions (JF1)	
Pin#	Definition
7	Blue UID LED
8	Red_LED-Cathode/OH/Fan Fail

OH/Fan Fail LED Status (Red LED)	
State	Definition
Off	Normal
On	Overheat
Flashing 1 Hz	Fan Fail

Blue UID LED Status	
State	Definition
Off	UID Off
On	UID On



A. NIC1 LED
B. NIC2 LED
C. OH/Fan Fail/UID LED

NMI Button

The non-maskable interrupt button header is located on pins 19 and 20 of JF1. Refer to the table on the right for pin definitions.

NMI Button Pin Definitions (JF1)	
Pin#	Definition
19	Control
20	Ground

Reset Button

The Reset Button connection is located on pins 3 and 4 of JF1. Momentarily contacting both pins will hard reset the system. Attach it to a hardware reset switch on the computer case to reset the system. Refer to the table on the right for pin definitions.

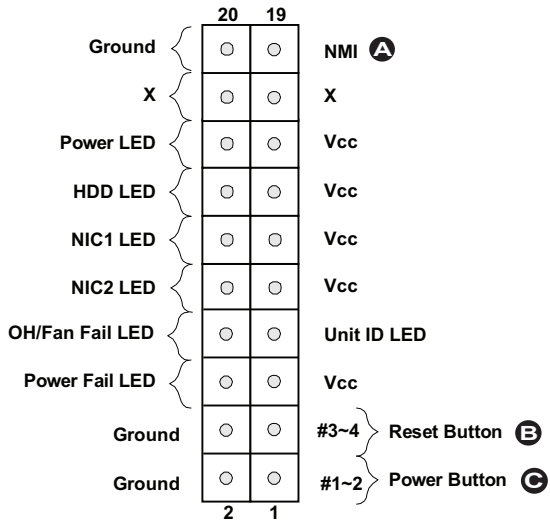
Reset Button Pin Definitions (JF1)	
Pin#	Definition
3	Reset
4	Ground

Power Button

The Power Button connection is located on pins1 and 2 of JF1. Momentarily contacting both pins will power on/off the system. This button can also be configured to function as a suspend button (with a setting in the BIOS - see Chapter 4). To turn off the power in the suspend mode, press the button for at least 4 seconds. Refer to the table on the right for pin definitions.

Power Button Pin Definitions (JF1)	
Pin#	Definition
1	Signal
2	+3V Standby

A. NMI Button
B. Reset Button
C. PWR Button



2-6 Connecting Cables & Optional Devices

This section provides brief descriptions and pin-out definitions for onboard headers and connectors. Be sure to use the correct cable for each header or connector.

Main PWR (JPW1) & GPU PWR Connectors (JPW2, JPW3)

The 20-pin proprietary main power connector (JPW1) is used to provide power to the motherboard. The 8-pin GPU PWR connector JPW2 is also required for the graphics processor. JPW3 is used if additional power to the GPU is needed for performance boost. These power connectors meet the SSI EPS 12V specification. See the table on the right for pin definitions.

20-pin Power Connector Pin Definitions (JPW1)

Pin#	Definition	Pin #	Definition
11	PS_ON_N	1	GND1
12	5V STBY	2	GND2
13	GND6	3	GND3
14	GND7	4	GND4
15	GND8	5	GND5
16	NC2	6	NC1
17	12V_5	7	12V_1
18	12V_6	8	12V_2
19	12V_7	9	12V_3
20	12V_8	10	12V_4

12V 8-pin Power Connector Pin Definitions

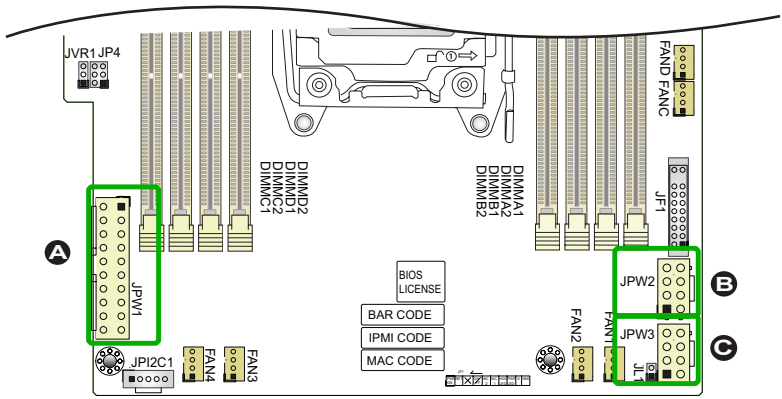
Pins	Definition
1 through 3	+12V
4 through 8	Ground

(Required)

A. 20-Pin Main PWR

B. 8-Pin GPU PWR (JPW2)

C. 8-Pin GPU PWR (JPW3)



Fan Headers (FAN1~4, FANA~D)

The X10SRG-F series has eight (8) fan headers (Fan 1~Fan 4 and Fan A~Fan D). These fans are 4-pin fan headers. Though Pins 1-3 of the fan headers are backward compatible with traditional 3-pin fans, it is recommended that 4-pin fans are used to allow the fan speed control setting in the BIOS Hardware Monitoring section (if set) to automatically adjust fan speeds based on the system temperature. Refer to the table on the right for pin definitions.

Fan Header Pin Definitions	
Pin#	Definition
1	Ground (Black)
2	+12V (Red)
3	Tachometer
4	PWM_Control

Fan Header Recommended Usage	
Fan#	Definition
1~4	CPU/System
A~D	I/O & Addon Cards

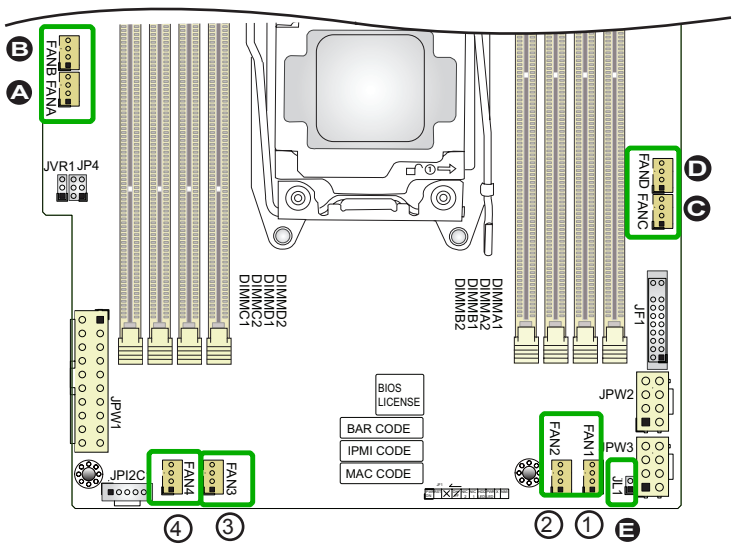
Chassis Intrusion (JL1)

A Chassis Intrusion header is located at JL1 on the motherboard. Attach the appropriate cable from the chassis to inform you of a chassis intrusion when the chassis is opened.

Chassis Intrusion Pin Definitions (JL1)	
Pin#	Definition
1	Intrusion Input
2	Ground

1. Fan 1
2. Fan 2
3. Fan 3
4. Fan 4

A. Fan A
B. Fan B
C. Fan C
D. Fan D
E. Chassis Intrusion



Legacy Wake-On-LAN Header (JSTBY1)

The onboard LANs (LAN1 and LAN2) do not need WOL header to support its Wake-On-LAN function. We preserved the legacy WOL header to provide convenience for some embedded customers who need internal power source from the board. See the table on the right for pin definitions.

Wake-On-LAN (JSTBY1) Pin Definitions	
Pin#	Definition
1	+5V Standby
2	Ground
3	Wake-up

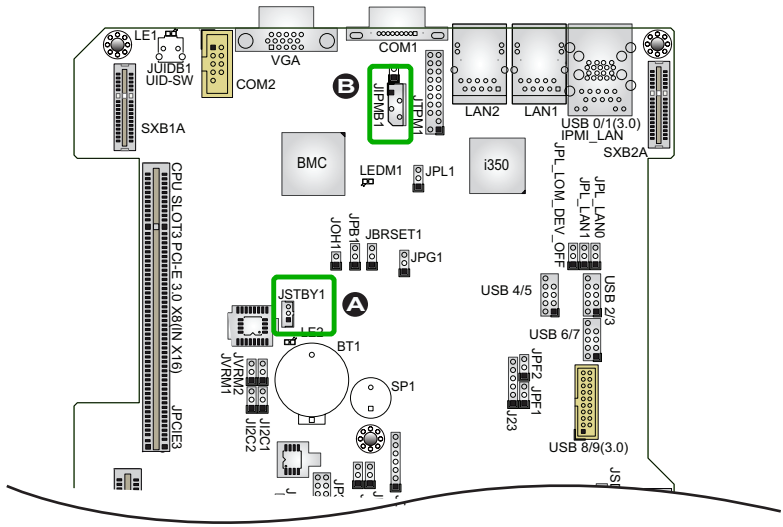
System Management Bus (JIPMB1)

A System Management Bus header for the IPMI slot is located at JIPMB1. Connect the appropriate cable here to use the IPMB I2C connection on your system.

System Management Bus (JIPMB1)	
Pin#	Definition
1	Data
2	Ground
3	Clock
4	No Connection

A. Wake On LAN

B. System Management Bus



Power Supply I2C (JPI2C1)

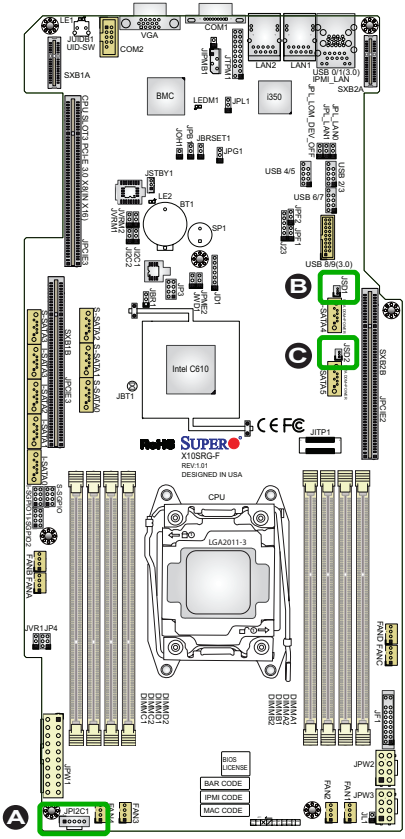
The Power Supply I2C connector, located at JPI2C1, monitors the status of the power supply, fan and system temperature. See the table on the right for pin definitions.

PWR Supply (I2C) Pin Definitions	
Pin#	Definition
1	Clock
2	Data
3	PWR Fail
4	Ground

DOM PWR Connector (JSD1/JSD2)

The Disk-On-Module (DOM) power connectors, located at JSD1/JSD2, provide 5V (Gen1/Gen) power to a solid-state DOM storage device connected to one of the SATA ports. See the table on the right for pin definitions.

DOM PWR (JSD1) Pin Definitions	
Pin#	Definition
1	5V
2	Ground
3	Ground



A. Power Supply I2C
B. JSD1 DOM Power
C. JSD2 DOM Power

I-SGPIO1/I-SGPIO2/S-SGPIO

Three (3) T-SGPIO (Serial-Link General Purpose Input/Output) headers are located next to the I-SATA Ports on the motherboard. These headers are used to communicate with the enclosure management chip in the system. See the table on the right for pin definitions. Refer to the board layout below for the locations of the headers.

Serial Link General-Purpose Headers (SGPIO) Pin Definitions

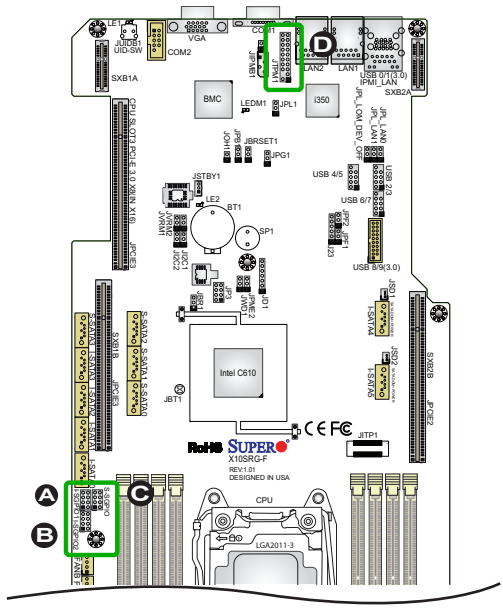
Pin#	Definition	Pin	Definition
1	NC	2	NC
3	Ground	4	DATA Out
5	Load	6	Ground
7	Clock	8	NC

TPM Header (JTPM1)

This header is used to connect a Trusted Platform Module (TPM), which is available from a third-party vendor. A TPM is a security device that supports encryption and authentication in hard drives. It enables the motherboard to deny access if the TPM associated with the hard drive is not installed in the system. See the table on the right for pin definitions.

Trusted Platform Module Header (JTPM1) Pin Definitions

Pin #	Definition	Pin #	Definition
1	LCLK	2	GND
3	LFRAME#	4	No Pin
5	LRESET#	6	+5V (X)
7	LAD3	8	LAD2
9	3.3V	10	LAD1
11	LAD0	12	GND
13	SMB_CLK4 (X)	14	SMB_DAT4 (X)
15	P3V3_STBY	16	SERIRQ
17	GND	18	GND
19	P3V3_STBY	20	LDRQ# (X)



A. I-SGPIO1

B. I-SGPIO2

C. S-SGPIO

D. TPM Header

Overheat/Fan Fail LED (JOH1)

The JOH1 header is used to connect an LED to provide warnings of chassis overheat. This LED will also blink to indicate a fan failure. Refer to the table on right for pin definitions.

OH/Fan Fail LED (JOH1) Pin Definitions	
Pin#	Definition
1	3.3V
2	OH Active

OH/Fan Fail LED (JOH1) Pin Definitions	
State	Message
Solid	Overheat
Blinking	Fan Fail

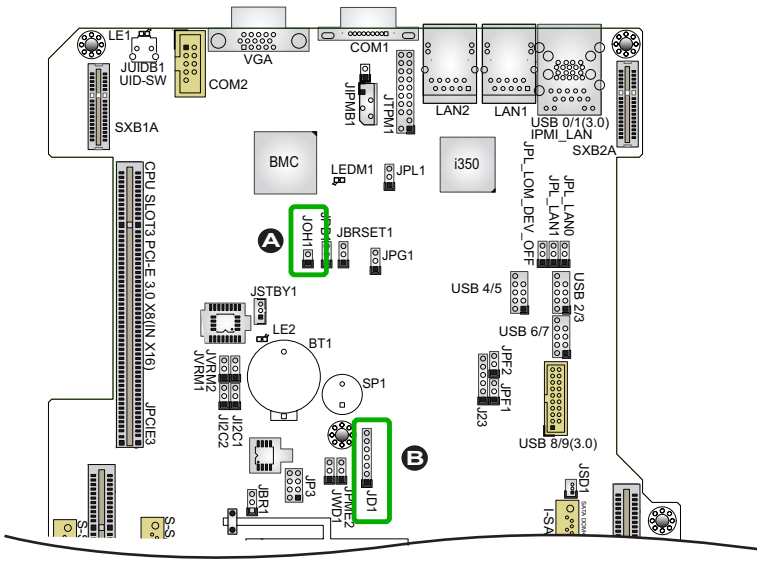
Speaker (JD1)

On the JD1 header, pins 4-7 are used for internal speaker. Close pins 4-7 with a cap to use the speaker. See the table on the right for pin definitions.

JD1 Jumper Pin Definitions	
Pin#	Definition
1-3	Power LED
4-7	Speaker

A. Overheat/Fan Fail LED

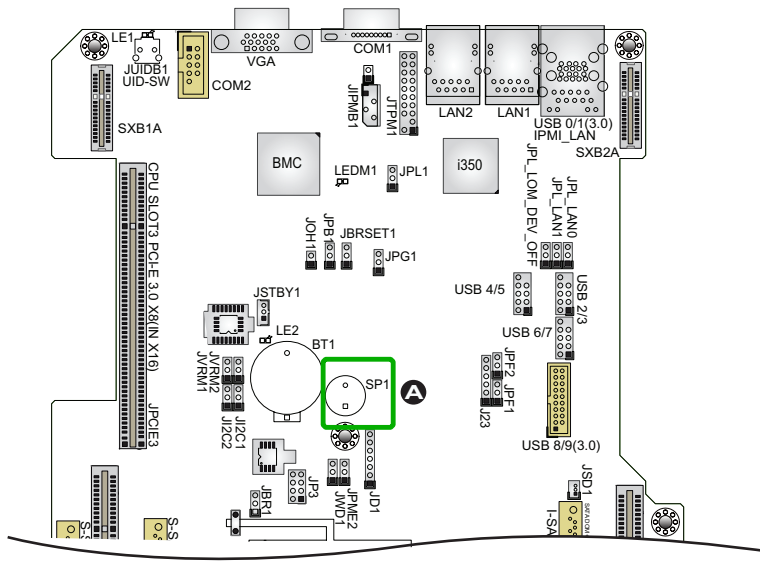
B. Internal Speaker



Internal Buzzer (SP1)

The Internal Buzzer (SP1) can be used to provide audible indications for various beep codes. See the table on the right for pin definitions.

Internal Buzzer Pin Definition		
Pin#		Definitions
Pin 1	Pos. (+)	Beep In
Pin 2	Neg. (-)	Alarm Speaker

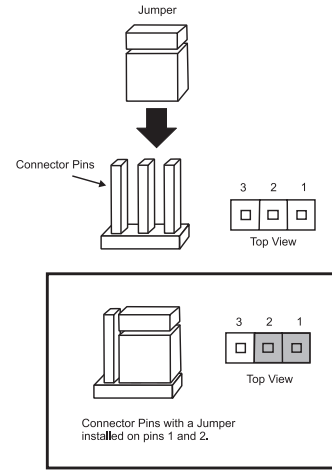


2-7 Jumper Settings

Explanation of Jumpers

To modify the operation of the motherboard, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board.

Note: On two-pin jumpers, "Closed" means the jumper is on, and "Open" means the jumper is off the pins.

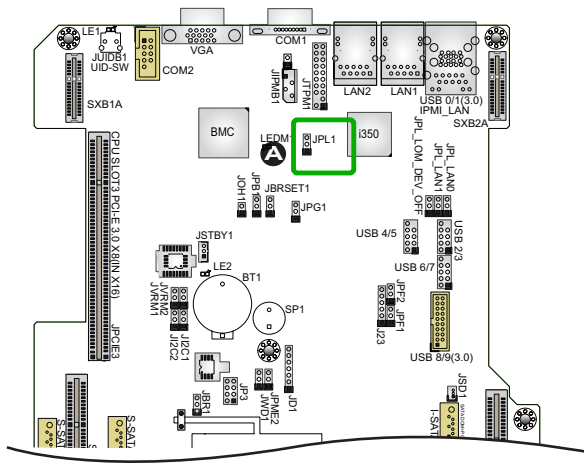


LAN Port Enable/Disable (JPL1)

Jumper JPL1 enables or disables LAN Ports 1 and 2 on the motherboard. See the table on the right for jumper settings. The default setting is enabled.

LAN Enable Jumper Settings	
Setting	Definition
Pins 1-2	Enabled (Default)
Pins 2-3	Disabled

A. LAN Ports 1/2 Enable



Clear CMOS (JBT1)

JBT1 is used to clear CMOS. Instead of pins, this "jumper" consists of contact pads to prevent accidental clearing of CMOS. To clear CMOS, use a metal object such as a small screwdriver to touch both pads at the same time to short the connection. Always remove the AC power cord from the system before clearing CMOS.

Important: For an ATX power supply, you must completely shut down the system, remove the AC power cord and then short JBT1 to clear CMOS.

PCI Slot SMB Enable (JI2C1/JI2C2)

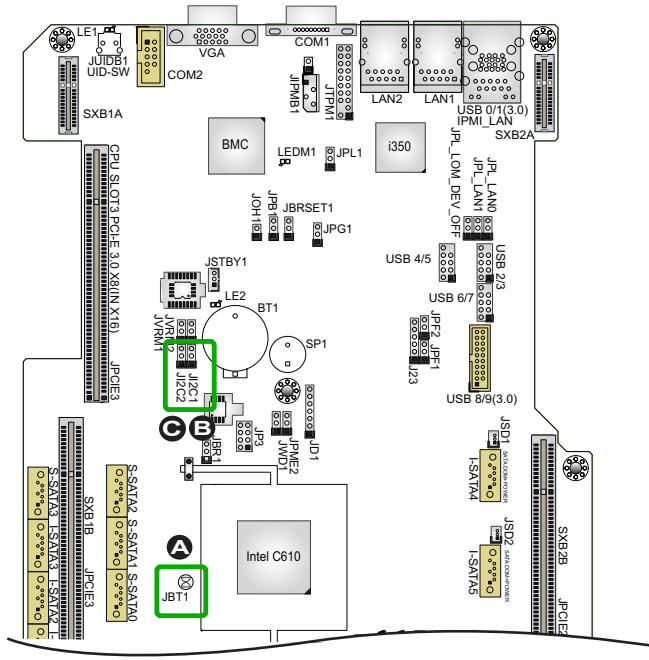
Use Jumpers JI2C2/JI2C3 to enable PCI SMB (System Management Bus) support to improve system management for the PCI slots. See the table on the right for jumper settings.

PCI Slot SMB Enable (JI2C) Jumper Settings	
Setting	Definition
Short	Enabled (Default)
Open	Disabled

A. Clear CMOS

B. JI2C1

C. JI2C2



Watch Dog Reset (JWD1)

Watch Dog (JWD1) is a system monitor that can reboot the system when a software application hangs. Close pins 1-2 to reset the system if an application hangs. Close pins 2-3 to generate a non-maskable interrupt signal for the application that hangs. See the table on the right for jumper settings. Watch Dog must also be enabled in the BIOS.

Watch Dog (JWD1) Jumper Settings	
Setting	Definition
Pins 1-2	Reset (Default)
Pins 2-3	NMI
Open	Disabled

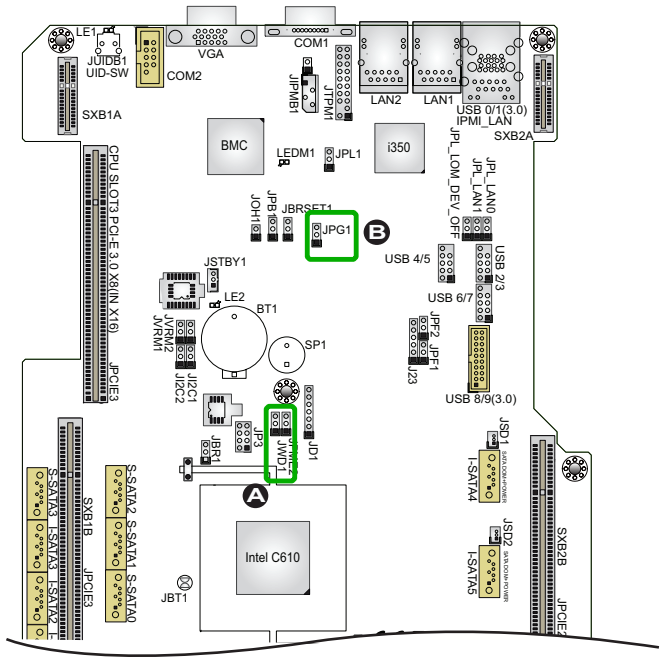
VGA Enable (JPG1)

JPG1 allows you to enable or disable the onboard VGA port. The default position is on pins 1 and 2 to enable VGA. See the table on the right for jumper settings.

VGA Enable/Disable (JPG1) Jumper Settings	
Setting	Definition
Pins 1-2	Enabled (Default)
Pins 2-3	Disabled

A. Watch Dog Reset

B. VGA Enable



BMC Enable/Disable (JPB1)

JPB1 is used to enable or disable the BMC (Baseboard Management Control) chip and the onboard IPMI port. This jumper is used together with the IPMI settings in the BIOS. See the table on the right for jumper settings.

BMC IPMI Enable/Disable (JPB1) Jumper Settings	
Setting	Definition
Pins 1-2	Enabled (Default)
Pins 2-3	Disabled

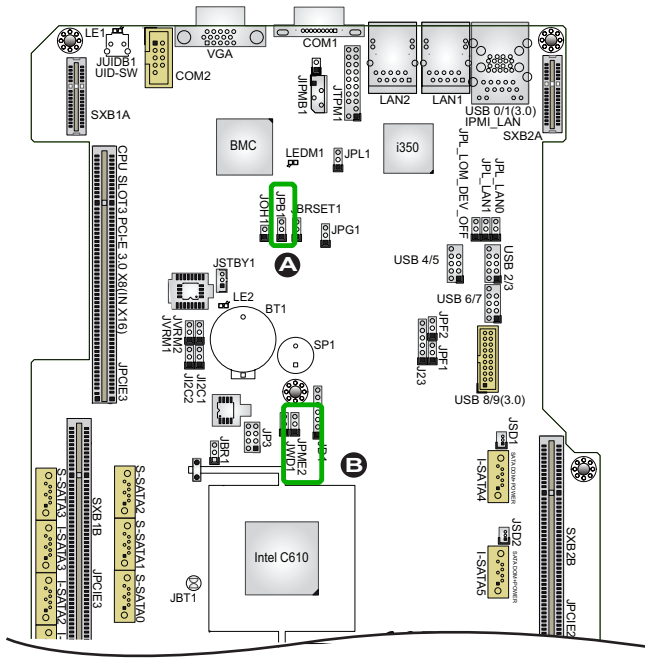
Manufacturer Mode Select (JPME2)

Close this jumper to bypass SPI flash security and force the system to use the Manufacturer Mode, which will allow the user to flash the system firmware from a host server to modify system settings. See the table on the right for jumper settings.

Manufacturer Mode (JPME2) Jumper Settings	
Setting	Definition
Pins 1-2	Normal (Default)
Pins 2-3	Manufacture Mode

A. BMC Enable/Disable

B. Manufacture Mode Select



BIOS Recovery (JBR1)

Close pins 2 and 3 of jumper JBR1 for BIOS recovery. The default setting is on pins 1 and 2 for normal operation. See the table on the right for jumper settings.

BIOS Recovery Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Normal
Pins 2-3	BIOS Recovery

I²C Bus for VRM

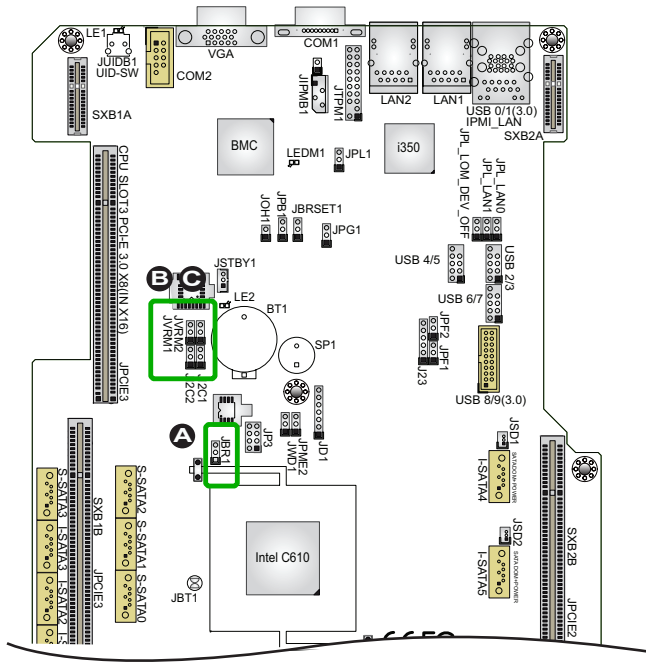
Jumpers JVRM1 and JVRM2 allow the BMC or the PCH to access CPU and memory VRM controllers. See the table on the right for jumper settings.

VRM Pin Defintions	
Pin #	Definition
1-2	BMC (Default)
2-3	PCH

A. BIOS Recovery

B. JVRM1

C. JVRM2

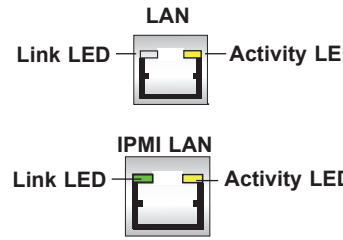


2-8 Onboard Indicators

LAN Port LEDs

The LAN ports are located on the I/O backpanel of the motherboard. Each Ethernet LAN port has two LEDs. The yellow LED indicates activity, while the Link LED may be green, amber, or off to indicate the speed of the connections. On the IPMI port, the yellow LED on the right indicates activity, while the green LED on the left indicates the speed of the connection. See the table at right for more information. See the tables at right for more information.

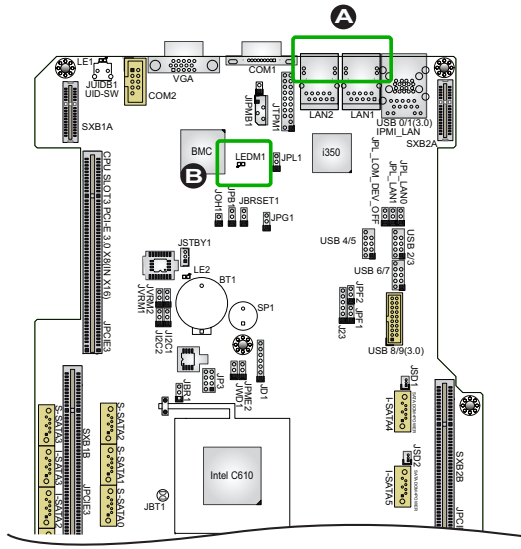
LAN Link LEDs (Green/Amber/Off)	
LED Color	Definition
Off	No Connection or 10 Mbps
Green	100 Mbps
Amber	1 Gbps



IPMI Heartbeat LED (LEDM1)

The IPMI Heartbeat LED is located at LEDM1. When LEDM1 blinks, the IPMI feature is functioning properly. Refer to the table on the right for details. Also see the layout below for the LED location.

IPMI Heartbeat LED Indicator LED Settings	
Green: Blinking	IPMI is ready for use
Off	IPMI Off



A. LAN Port LEDs

B. IPMI Heartbeat LED

Unit Identification LED (LE1)

A rear UID LED indicator (LE1) is located next to the I/O backplane. This UID Indicator provides easy identification of a system unit that may be in need of service.

Note: UID can also be triggered via IPMI on the motherboard. For more information on IPMI, please refer to the IPMI User's Guide posted on our website @ http://www.super-micro.com.

UID LED Status		
Color/State	OS Status	
Blue: On	Windows OS	Unit Identified

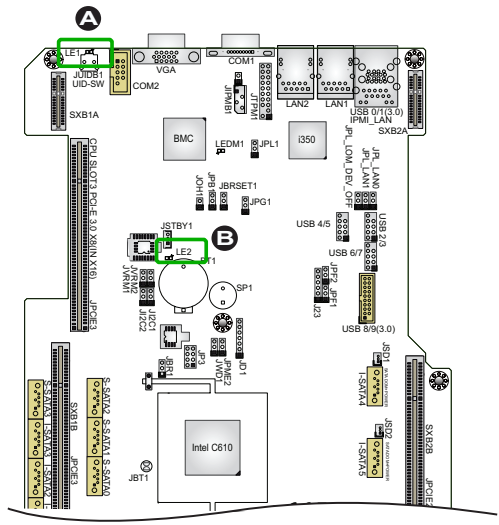
Onboard Power LED (LE2)

An Onboard Power LED is located at LE2 on the motherboard. When LE2 is on, the AC power cable is connected. Make sure to disconnect the power cable before removing or installing any component. See the layout below for the LED location.

Onboard PWR LED Indicator LED Status	
Color/Status	Definition
Off	System Off
Grenn: On	System on

A. Unit ID LED

B. Onboard Power LED



2-9 SATA Connections

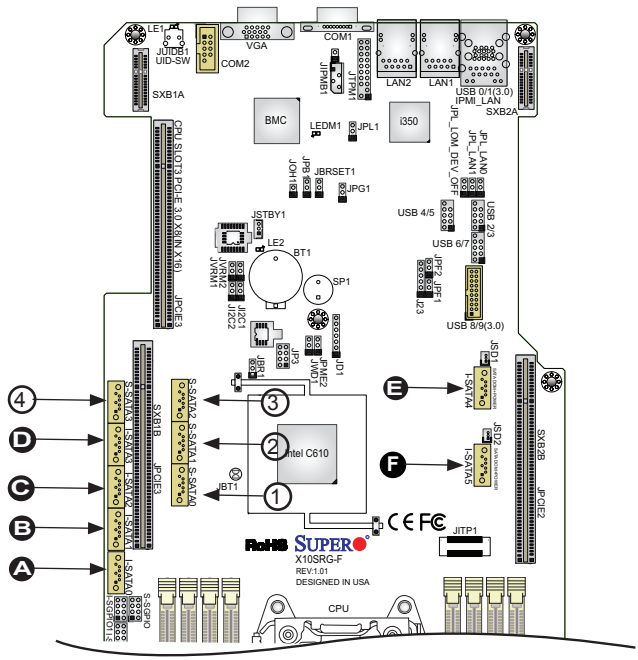
SATA/SAS Connections

Ten SATA 3.0 connectors (I-SATA 0-5) and (S-SATA 0-3) are located on the board. I-SATA 0-5 ports are supported by the AHCI controller and are compatible with RAID 0, 1, 5, 10. S-SATA 0-3 ports are supported by the sSATA controller and are compatible with RAID 0, 1, 5, 10. These Serial Link connections provide faster data transmission than legacy Parallel ATA. See the table on the right for pin definitions.

SATA/SAS Connectors Pin Definitions	
Pin#	Signal
1	Ground
2	SATA_TXP
3	SATA_TXN
4	Ground
5	SATA_RXN
6	SATA_RXP
7	Ground

A. I-SATA 0 (3.0)
B. I-SATA 1 (3.0)
C. I-SATA 2 (3.0)
D. I-SATA 3 (3.0)
E. I-SATA 4 (3.0)
F. I-SATA 5 (3.0)

1. S-SATA 0 (3.0)
2. S-SATA 1 (3.0)
3. S-SATA 2 (3.0)
4. S-SATA 3 (3.0)



Notes

Chapter 3

Troubleshooting

3-1 Troubleshooting Procedures

Use the following procedures to troubleshoot your system. If you have followed all of the procedures below and still need assistance, refer to the 'Technical Support Procedures' and/or 'Returning Merchandise for Service' section(s) in this chapter. Always disconnect the AC power cord before adding, changing or installing any hardware components.

Before Power On

1. Make sure that the Standby is not on. (**Note:** If it is on, the onboard power is on. Be sure to unplug the power cable before installing or removing the components.)

2. Make sure that there are no short circuits between the motherboard and chassis.

3. Disconnect all ribbon/wire cables from the motherboard, including those for the keyboard and mouse. Also, be sure to remove all add-on cards.

4. Install a CPU and heatsink (-be sure that it is fully seated) and then connect the chassis speaker and the power LED to the motherboard. Check all jumper settings as well.

No Power

1. Make sure that there are no short circuits between the motherboard and chassis.

2. Make sure that all jumpers are set to their default positions.

3. Check if the 115V/230V switch on the power supply is properly set.

4. Turn the power switch on and off to test the system.

5. The battery on your motherboard may be old. Check to make sure that it still supplies ~3VDC. If it does not, replace it with a new one.

No Video

1. If the power is on, but you have no video--in this case, you will need to remove all the add-on cards and cables first.

2. Use the speaker to determine if any beep codes exist. (Refer to Appendix A for details on beep codes.)

3. Remove all memory modules and turn on the system. (If the alarm is on, check the specs of memory modules, reset the memory or try a different one.)

Memory Errors

1. Make sure that the DIMM modules are properly installed and fully seated in the slots.

2. You should be using memory recommended by Supermicro (see Section 2-3). Also, it is recommended that you use the memory modules of the same type and speed for all DIMMs in the system. Do not use memory modules of different sizes, different speeds and different types on the same motherboard.

3. Check for bad DIMM modules or slots by swapping modules between slots to see if you can locate the faulty ones.

4. Check the switch of 115V/230V power supply.

When You Lose the System's Setup Configuration

1. Please be sure to use a high quality power supply. A poor quality power supply may cause the system to lose CMOS setup information. Refer to Section 1-5 for details on recommended power supplies.

2. The battery on your motherboard may be old. Check to verify that it still supplies ~3VDC. If it does not, replace it with a new one.

3. If the above steps do not fix the Setup Configuration problem, contact your vendor for repairs.

3-2 Technical Support Procedures

Before contacting Technical Support, please make sure that you have followed all the steps listed below. Also, Note that as a motherboard manufacturer, Supermicro does not sell directly to end users, so it is best to first check with your distributor or reseller for troubleshooting services. They should know of any possible problem(s) with the specific system configuration that was sold to you.

1. Please go through the 'Troubleshooting Procedures' and 'Frequently Asked Question' (FAQ) sections in this chapter or see the FAQs on our website (http://www.supermicro.com/support/faqs/) before contacting Technical Support.

2. BIOS upgrades can be downloaded from our website at (http://www.supermicro.com/support/bios/).

   Note: Not all BIOS can be flashed. Some cannot be flashed; it depends on the boot block code of the BIOS.

3. If you've followed the instructions above to troubleshoot your system, and still cannot resolve the problem, then contact Supermicro's technical support and provide them with the following information:

- Motherboard model and PCB revision number
- BIOS release date/version (this can be seen on the initial display when your system first boots up)
- System configuration
- An example of a Technical Support form is on our website at (http://www.supermicro.com/support/contact.cfm).

4. Distributors: For immediate assistance, please have your account number ready when placing a call to our technical support department. We can be reached by e-mail at support@supermicro.com, by phone at: (408) 503-8000, option 2, or by fax at (408) 503-8019.

3-3 Frequently Asked Questions

Question: What type of memory does my motherboard support?

Answer: Please see Section 2-4 for a comprehensive answer.

Question: How do I update my BIOS?

Answer: It is recommended that you **do not** upgrade your BIOS if you are not experiencing any problems with your system. Updated BIOS files are located on our website at http://www.supermicro.com/support/bios/. Please check our BIOS warning message and the information on how to update your BIOS on our web site. Select your motherboard model and download the BIOS ROM file to your computer. Also, check the current BIOS revision to make sure that it is newer than your BIOS before downloading. Please unzip the BIOS file onto a bootable device or a USB pen/thumb drive. To flash the BIOS, run the batch file named "ami.bat" with the new BIOS ROM file from your bootable device or USB pen/thumb drive. Use the following format:

F:\> ami.bat BIOS-ROM-filename.xxx <Enter>

Note: Always use the file named "ami.bat" to update the BIOS, and insert a space between "ami.bat" and the filename. The BIOS-ROM-filename will bear the motherboard name (i.e., X10SRG-F) and build version as the extension. For example, "X10SRG-F1.218". When completed, your system will automatically reboot.

When the BIOS flashing screen is completed, the system will reboot and will show "Press F1 or F2". At this point, you will need to load the BIOS defaults. Press <F1> to go to the BIOS setup screen, and press <F3> to load the default settings. Next, press <F4> to save and exit. The system will then reboot.

Warning: Do not shut down or reset the system while updating the BIOS to prevent possible system boot failure!

Note: The SPI BIOS chip installed on this motherboard is not removable. To repair or replace a damaged BIOS chip, please send your motherboard to RMA at Supermicro for service.

Question: I think my BIOS is corrupted. How can I recover my BIOS?

Answer: Please see Appendix C-BIOS Recovery for detailed instructions.

Question: Why do I get an error message "IASTOR.SYS read error" and "press F6 to install Intel RAID driver" when installing Windows on my motherboard?

Answer: To solve this issue, disable the IPMI jumper (if your motherboard has this feature). Another solution is to use a USB floppy drive instead of the onboard floppy drive. For the IPMI jumper location, please check Chapter 1.

Question: What is the heatsink part number for my X10SRG-F Series motherboard?

Answer: For the 1U passive heatsink, ask for SNK-P0047P. For the 3U active heatsink, use SNK-P0050AP4.

Question: Why can't I recover the BIOS even when I've followed the instructions in the user's manual for the motherboard?

Answer: Please disable the IPMI jumper and try it again. For the jumper location, please check Chapter 1.

3-4 Battery Removal and Installation

Battery Removal

To remove the onboard battery, follow the steps below:

1. Power off your system and unplug your power cable.
2. Locate the onboard battery as shown below.
3. Using a tool such as a pen or a small screwdriver, push the battery lock outwards to unlock it. Once unlocked, the battery will pop out from the holder.
4. Remove the battery.

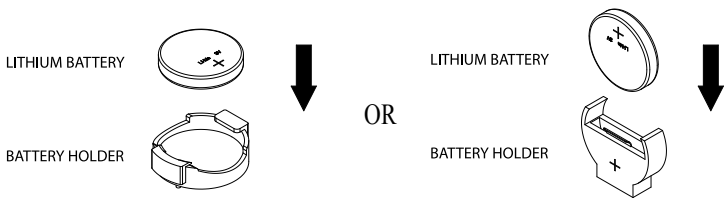
Proper Battery Disposal

Warning: Please handle used batteries carefully. Do not damage the battery in any way; a damaged battery may release hazardous materials into the environment. Do not discard a used battery in the garbage or a public landfill. Please comply with the regulations set up by your local hazardous waste management agency to dispose of your used battery properly.

Battery Installation

1. To install an onboard battery, follow the steps 1 & 2 above and continue below:
2. Identify the battery's polarity. The positive (+) side should be facing up.
3. Insert the battery into the battery holder and push it down until you hear a click to ensure that the battery is securely locked.

Warning: When replacing a battery, be sure to only replace it with the same type.



3-5 Returning Merchandise for Service

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service will be rendered. You can obtain service by calling your vendor for a Returned Merchandise Authorization (RMA) number. For faster service, you may also obtain RMA authorizations online (http://www.supermicro.com/RmaForm/). When you return the motherboard to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and mailed prepaid or hand-carried. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

This warranty only covers normal consumer use and does not cover damages incurred in shipping or from failure due to the alteration, misuse, abuse or improper maintenance of products.

During the warranty period, contact your distributor first for any product problems.

Notes

Chapter 4

BIOS

4-1 Introduction

This chapter describes the AMI BIOS setup utility for the X10SRi-F. The ROM BIOS is stored in a Flash EEPROM and can be easily updated. This chapter describes the basic navigation of the AMI BIOS setup utility screens.

Note: For AMI BIOS recovery, please refer to the UEFI BIOS Recovery Instructions in Appendix C.

Starting BIOS Setup Utility

To enter the AMI BIOS setup utility screens, press the <Delete> key while the system is booting up.

Note: In most cases, the <Delete> key is used to invoke the AMI BIOS setup screen. There are a few cases when other keys are used, such as <F1>, <F2>, etc.

Each main BIOS menu option is described in this manual. The AMI BIOS setup menu screen has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured. Options in blue can be configured by the user. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it.

Note: the AMI BIOS has default text messages built in. Supermicro retains the option to include, omit, or change any of these text messages.

The AMI BIOS setup utility uses a key-based navigation system called "hot keys." Most of the AMI BIOS setup utility "hot keys" can be used at any time during the setup navigation process. These keys include <F1>, <F4>, <Enter>, <Esc>, arrow keys, etc.

Note: Options printed in **Bold** are default settings.

How To Change the Configuration Data

The configuration data that determines the system parameters may be changed by entering the AMI BIOS setup utility. This setup utility can be accessed by pressing <Del> at the appropriate time during system boot.

How to Start the Setup Utility

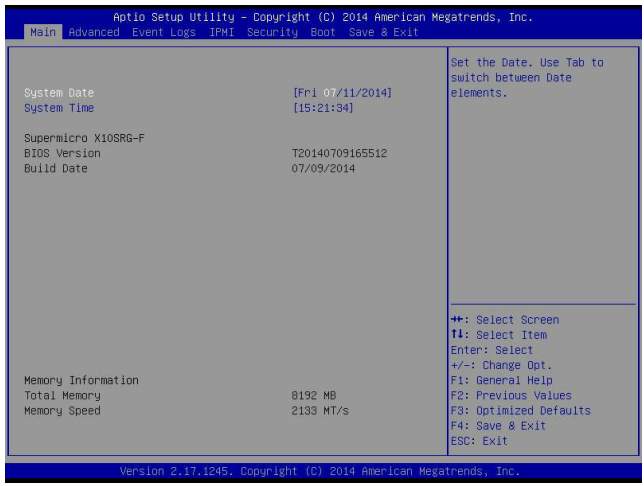
Normally, the only visible Power-On Self-Test (POST) routine is the memory test. As the memory is being tested, press the <Delete> key to enter the main menu of the AMI BIOS setup utility. From the main menu, you can access the other setup screens. An AMI BIOS identification string is displayed at the left bottom corner of the screen, below the copyright message.

Warning: Do not upgrade the BIOS unless your system has a BIOS-related issue. Flashing the wrong BIOS can cause irreparable damage to the system. In no event shall Supermicro be liable for direct, indirect, special, incidental, or consequential damages arising from a BIOS update. If you have to update the BIOS, do not shut down or reset the system while the BIOS is updating. This is to avoid possible boot failure.

4-2 Main Setup

When you first enter the AMI BIOS setup utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab on the top of the screen. The Main BIOS setup screen is shown below.

The following Main menu items will be displayed:



System Date/System Time

Use this option to change the system date and time. Highlight *System Date* or *System Time* using the arrow keys. Enter new values using the keyboard. Press the <Tab> key or the arrow keys to move between fields. The date must be entered in Day MM/DD/YYYY format. The time is entered in HH:MM:SS format.

Note: The time is in the 24-hour format. For example, 5:30 P.M. appears as 17:30:00. The date's default value is 01/01/2014 after RTC reset.

Supermicro X10SRG-F

BIOS Version

This item displays the version of the BIOS ROM used in the system.

Build Date

This item displays the date when the version of the BIOS ROM used in the system was built.

Memory Information

Total Memory

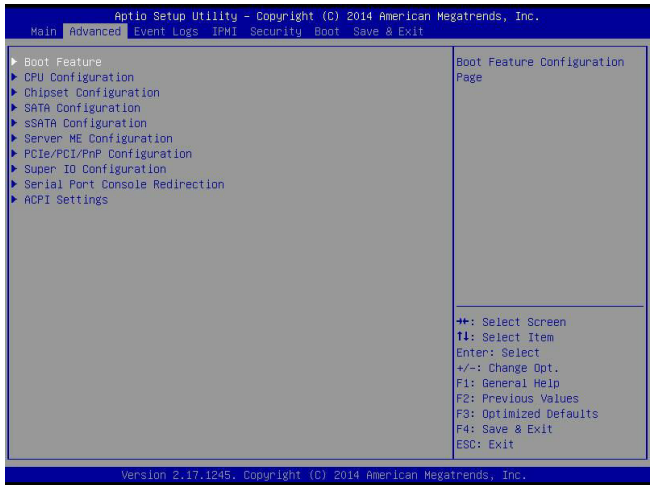
This item displays the total size of memory available in the system.

Memory Speed

This item displays the default speed of the memory modules installed in the system.

4-3 Advanced Setup Configurations

Use the arrow keys to select Advanced setup and press <Enter> to access the submenu items:



Warning: Take Caution when changing the Advanced settings. An incorrect value, a very high DRAM frequency or an incorrect BIOS timing setting may cause the system to malfunction. When this occurs, restore the setting to the manufacture default setting.

▶Boot Feature

Quiet Boot

Use this feature to select the screen between displaying POST messages or the OEM logo at bootup. Select Disabled to display the POST messages. Select Enabled to display the OEM logo instead of the normal POST messages. The options are **Enabled** and Disabled.

Note: This item enables or disables both Early Video Logo and Graphical Logo per 600A WW30 meeting. POST message is always dispalyed regardless of the item setting.

AddOn ROM Display Mode

Use this item to set the display mode for the Option ROM. Select Keep Current to use the current AddOn ROM display setting. Select Force BIOS to use the Option ROM display mode set by the system BIOS. The options are **Force BIOS** and Keep Current.

Bootup Num-Lock

Use this feature to set the Power-on state for the Numlock key. The options are Off and **On**.

Wait For 'F1' If Error

Select Enabled to force the system to wait until the 'F1' key is pressed if an error occurs. The options are Disabled and **Enabled**.

INT19 (Interrupt 19) Trap Response

Interrupt 19 is the software interrupt that handles the boot disk function. When this item is set to Immediate, the ROM BIOS of the host adaptors will "capture" Interrupt 19 at bootup immediately and allow the drives that are attached to these host adaptors to function as bootable disks. If this item is set to Postponed, the ROM BIOS of the host adaptors will not capture Interrupt 19 immediately and allow the drives attached to these adaptors to function as bootable devices at bootup. The options are **Immediate** and Postponed.

Re-try Boot

When EFI Boot is selected, the system BIOS will automatically reboot the system from an EFI boot device after its initial boot failure. Select Legacy Boot, to allow the BIOS to automatically reboot the system from a Legacy boot device after its initial boot failure. The options are **Disabled**, Legacy Boot, and EFI Boot.

Power Configuration

DeepSx Power Policies

Use this item to configure the Advanced Configuration and Power Interface (ACPI) settings for the system. Enable S3 to use Standby Mode (Suspend-to-RAM) and maintain power supply to the system RAM when the system is in the sleep mode. Enable S4 to use Hibernation mode (Suspend to Disk) so that all data stored in of the main memory can be saved in a non-volatile memory area such as in a hard drive and then power down the system. Enable S5 to power off the whole system except the power supply unit (PSU) and keep the power button "alive" so that the user can "wake-up" the system by using an USB keyboard or mouse. The options are **Disabled**, Enabled in S5, Enabled in S4-S5, and Enabled in S3-S4-S5.

Note: Exposed if motherboard designs it in.

GP27 Wake From DeepSx

Use this feature to enable or disable GP27 to wake from Deep Sx mode. The options are Enabled and **Disabled**.

Note: Exposed if motherboard designs it in.

Watch Dog Function

Select Enabled to allow the Watch Dog timer to reboot the system when it is inactive for more than 5 minutes. The options are Enabled and **Disabled.**

Power Button Function

This feature controls how the system shuts down when the power button is pressed. Select 4 Seconds Override for the user to power off the system after pressing and holding the power button for 4 seconds or longer. Select Instant Off to instantly power off the system as soon as the user presses the power button. The options are 4 Seconds Override and **Instant Off.**

Restore on AC Power Loss

Use this feature to set the power state after a power outage. Select Power-Off for the system power to remain off after a power loss. Select Power-On for the system power to be turned on after a power loss. Select Last State to allow the system to resume its last power state before a power loss. The options are Power-On, Stay-Off and **Last State**.

Note: Restore on AC Power Loss may malfunction after 4-sec power button override.

▶CPU Configuration

Warning: Setting the wrong values in the following sections may cause the system to malfunction.

CPU1/CPU2 Configuration

The following CPU information will be displayed:

- Processor Socket
- Processor ID
- Processor Frequency
- Processor Max Ratio
- Processor Min Ratio
- Microcode Revision
- L1 Cache RAM
- L2 Cache RAM

- L3 Cache RAM
- CPU1 Version
- CPU2 Version

Clock Spread Spectrum

Select Enable for Clock Spectrum support, which will allow the BIOS to monitor and attempt to reduce the level of Electromagnetic Interference caused by the components whenever needed. Select Disabled to enhance system stability. The options are **Disabled** and Enabled.

Hyper-Threading (ALL)

Select Enable to use Intel Hyper-Threading Technology to enhance CPU performance. The options are **Enable** and Disable.

Cores Enabled

This item configures the number of CPU cores to enable. Enter '0' to enable all cores. Please enter a numeric value. The maximum is dependent on what type of CPU is installed.

Execute Disable Bit (Available if supported by the OS & the CPU)

Set to Enabled for Execute Disable Bit support which will allow the processor to designate areas in the system memory where an application code can execute and where it cannot, thus preventing a worm or a virus from flooding illegal codes to overwhelm the processor or damaging the system during a virus attack. The options are **Enable** and Disable. (Refer to Intel and Microsoft websites for more information.)

PPIN Control

Select Unlock/Enable to use the Protected-Processor Inventory Number (PPIN) in the system. The options are **Unlock/Enable** and Unlock/Disable.

Hardware Prefetcher (Available when supported by the CPU)

If this item is set to Enable, the hardware prefetcher will prefetch streams of data and instructions from the main memory to the Level 2 (L2) cache to improve CPU performance. The options are Disable and **Enable**.

Adjacent Cache Line Prefetch (Available when supported by the CPU)

Select Enable for the CPU to prefetch both cache lines for 128 bytes as comprised. Select Disable for the CPU to prefetch both cache lines for 64 bytes. The options are Disable and **Enable**.

Note: If there is any change to this setting, you will need to power off and reboot the system for the change to take effect. Please refer to Intel's web site for detailed information.

DCU Streamer Prefetcher (Available when supported by the CPU)

If this item is set to Enable, the DCU (Data Cache Unit) streamer prefetcher will prefetch data streams from the cache memory to the DCU (Data Cache Unit) to speed up data accessing and processing for CPU performance enhancement. The options are Disable and **Enable**.

DCU IP Prefetcher

If this item is set to Enable, the IP prefetcher in the DCU (Data Cache Unit) will prefetch IP addresses to improve network connectivity and system performance. The options are **Enable** and Disable.

Direct Cache Access (DCA)

Select Enable to use Intel DCA (Direct Cache Access) Technology to maximize efficiency in memory data transferring and accessing. The options are **Auto**, Enable and Disable.

DCA Prefetch Delay

A DCA prefetcher is used with a TOE (TCP/IP Offload Engine) adapter to prefetch data to shorten execution cycles and to maximize data processing efficiency. Prefetching data too frequently can saturate the cache directory and delay necessary cache access. This feature reduces or increases the frequency of system data prefetching activities. The options are Disable, [8], [16], **[32]**, [40], [48], [56], [64], [72], [80], [88], [96], [104], and [112].

X2APIC (Extended Advanced Programmable Interrupt Controller)

Based on the Intel Hyper-Threading technology, each logical processor (thread) is assigned 256 APIC IDs (APIDs) in 8-bit bandwidth. When this item is set to Enable, the APIC ID will be expanded from 8 bits to 16 bits to provide 512 APIDs to each thread to enhance CPU performance. The options are **Disable** and Enable.

AES-NI

Select Enable to use the Intel Advanced Encryption Standard (AES) New Instructions (NI) to ensure data security. The options are Enable and **Disable**.

Intel Virtualization Technology

Select Enable to use Intel Virtualization Technology so that I/O device assignments will be reported directly to the VMM (Virtual Memory Management) through the DMAR ACPI Tables. This feature offers fully-protected I/O resource-sharing across the Intel platforms, providing the user with greater reliability, security and availability in networking and data-sharing. The settings are **Enable** and Disable.

▶Advanced Power Management Configuration

Power Technology

Select Energy Efficient to support power-saving mode. Select Custom to customize system power settings. Select Disabled to disable power-saving settings. The options are Disable, **Energy Efficient**, and Custom.

Config TDP

Select Enable to allow the user to configure the Thermal Design Power (TDP) settings for the system. The TDP refers to the maximum amount of power allowed for running "real applications" without triggering an overheating event. The options are **Disable** and Enable.

▶CPU P State Control

Note: The item will be edited when Power Technology item sets to Custom.

EIST (P-State)

EIST (Enhanced Intel SpeedStep Technology) allows the system to automatically adjust processor voltage and core frequency in an effort to reduce power consumption and heat dissipation. Please refer to Intel's website for detailed information. The options are Disable and **Enable**.

Turbo Mode

Select Enable for processor cores to run faster than the frequency specified by the manufacturer. The options are Disable and **Enable**.

Note: This item is grayed out when EIST (P-States) is set to Disable.

P-state Coordination

Use this item to configure the processor's P-State coordination settings. During a P-State, the voltage and frequency of the processor will be reduced when it is in operation. This makes the processor more energy efficient, resulting in further energy gains. The options are **HW_ALL**, SW_ALL and SW-ANY.

Note: This item is grayed out when EIST (P-States) is set to Disable.

▶CPU C State Control

Note: The item will be edited when Power Technology item sets to Custom.

Package C State limit

Use this item to set the limit on the C-State package register. The options are C0/1 state, C2 state, C6 (non-Retention) state, and **C6 (Retention) state**.

CPU C3 Report

Select Enable to allow the BIOS to report the CPU C3 State (ACPI C2) to the operating system. During the CPU C3 State, the CPU clock generator is turned off. The options are Enable and **Disable**.

CPU C6 Report (Available when Power Technology is set to Custom)

Select Enable to allow the BIOS to report the CPU C6 state (ACPI C3) to the operating system. During the CPU C6 state, power to all caches is turned off. The options are **Enable** and Disable.

Enhanced Halt State (**C1E)**

Select Enabled to enable "Enhanced Halt State" support, which will significantly reduce the CPU's power consumption by minimizing CPU's clock cycles and voltage use during a "Halt State." The options are Disable and **Enable**.

▶CPU T State Control

Note: The item will be edited when Power Technology item sets to Custom.

ACPI (Advanced Configuration Power Interface) T-States

If this item is set to Enable, CPU throttling will be supported by the operating system to reduce power consumption. The options are **Enable** and Disable.

▶Chipset Configuration

Warning: Setting the wrong values in the following sections may cause the system to malfunction.

▶North Bridge

This feature allows the user to configure the settings for the Intel North Bridge.

▶IIO Configuration

EV DFX (Device Function On-Hide) Feature

When this feature is set to Enable, the EV_DFX Lock Bits that are located on a processor will always remain clear during electric tuning. The options are **Disable** and Enable.

▶IIO1 Configuration

IOU2 (II01 PCIe Port 1)

This item configures the PCI-E port Bifuraction setting for a PCI-E port specified by the user. The options are x4x4, X8, and **Auto**.

IIO1 PORT 1A Link Speed

This item configures the link speed of a PCI-E port specified by the user. The options are Gen1 (2.5 GT/s), Gen2 (5GT/s), and **Gen3 (8 GT/s)**.

IOU0 (II01 PCIe Port 2)

This item configures the PCI-E port Bifuraction setting for a PCI-E port specified by the user. The options are x4x4x4x4, x4x4x8, x8x4x4, x8x8, x16, and **Auto**

IIO1 PORT 2A Link Speed

This item configures the link speed of a PCI-E port specified by the user. The options are Gen1 (2.5 GT/s), Gen2 (5GT/s), and **Gen3 (8 GT/s)**.

IOU1 (II01 PCIE Port 3)

Use this item to configure the PCI-E port Bifuraction setting for a PCI-E port specified by the user. The options are x4x4x4x4, x4x4x8, x8x4x4, x8x8, x16, and **Auto**.

IIO1 PORT 3A Link Speed

This item configures the link speed of a PCI-E port specified by the user. The options are Gen1 (2.5 GT/s), Gen2 (5GT/s), and **Gen3 (8 GT/s)**.

▶IOAT Configuration

Enable I/OAT

Select Enable to enable Intel I/OAT (I/O Acceleration Technology), which significantly reduces CPU overhead by leveraging CPU architectural improvements and freeing the system resource for other tasks. The options are **Enable** and Disable.

No Snoop

Select Enable to support no-snoop mode for each CB device. The options are **Disable** and Enable.

Relaxed Ordering

Select Enable to enable Relaxed Ordering support which will allow certain transactions to violate the strict-ordering rules of PCI and to be completed prior to other transactions that have already been enqueued. The options are **Disable** and Enable.

▶ Intel VT for Directed I/O (VT-d)

Intel VT for Direct I/O (VT-d)

Intel® VT for Directed I/O (VT-d)

Select Enable to use Intel Virtualization Technology support for Direct I/O VT-d support by reporting the I/O device assignments to the VMM (Virtual Machine Monitor) through the DMAR ACPI Tables. This feature offers fully-protected I/O resource sharing across Intel platforms, providing greater reliability, security and availability in networking and data-sharing. The options are **Enable** and Disable.

Interrupt Remapping

Select Enable for Interrupt Remapping support to enhance system performance. The options are **Enable** and Disable.

Note: This item is hidden when Intel VT for Directed I/) (VT-d) item is set to Disable.

▶QPI (Quick Path Interconnect) Configuration

The following information will display:

- Number of CPU
- Number of IIO

COD Enable (Available when the OS and the CPU support this feature)

Select Enabled for Cluster-On-Die support to enhance system performance in cloud computing. The options are Enabled and **Disabled**.

Isoc Mode

Select Enabled for Isochronous support to meet QoS (Quality of Service) requirements. This feature is especially important for Virtualization Technology. The options are Enable and **Disable**.

▶Memory Configuration

Enforce POR

Select Enable to enforce POR restrictions for DDR4 frequency and voltage programming. The options are **Enabled** and Disabled.

Memory Frequency

Use this feature to set the maximum memory frequency for onboard memory modules. The options are **Auto**, 1333, 1400, 1600, 1800, 1867, 2000, 2133, 2200, 2400, 2600, 2667, and Reserved (Do not select Reserved).

Data Scrambling

Select Enabled to enable data scrambling to enhance system performance and data integrity. The options are **Auto**, Disabled and Enabled.

DRAM RAPL (Running Average Power Limit) Baseline

Use this feature to set the run-time power-limit baseline for DRAM modules. The options are Disable, DRAM RAPL Mode 0, and **DRAM RAPL Mode 1**.

Set Throttling Mode

Throttling improves reliability and reduces power consumption in the processor via automatic voltage control during processor idle states. The options are Disabled and **CLTT** (Closed Loop Thermal Throttling).

Socket Interleave Below 4GB

Select Enabled for the memory above the 4G Address space to be split between two sockets. The options are Enable and **Disable**.

A7 Mode

Select Enabled to support A7 (Addressing) Mode to improve memory performance. The options are **Enable** and Disable.

▶DIMM Information

This item displays the status of a DIMM module specified.

- DIMMA1
- DIMMA2
- DIMMB1
- DIMMB2
- DIMMC1
- DIMMC2
- DIMMD1
- DIMMD2

▶Memory RAS (Reliability_Availability_Serviceability) Configuration

Use this submenu to configure the following Memory RAS settings.

RAS Mode

Select Enable to enable RAS support to enhance reliability, availability and serviceability of onboard memory modules. The options are Enable and **Disable**.

Memory Rank Sparing

This item indicates if memory rank sparing is supported by the motherboard. Memory rank sparing enhances system memory performance. The options are Enabled and **Disabled**.

Note: This item is grayed out when RAS Mode is set to Mirror.

Memory Rank Sparing

The options are One Rank, Two Rank, Three Rank, and **Auto**.

Note: This item is exposed when Memory Rank Sparing is set to Enabled.

Multi Rank Sparing

This feature determines how many ranks to be spared. The options are One Rank, Two Rank, Three Ran and **Auto**.

Note: This item is exposed when Memory Rank Sparing is set to Enabled.

Patrol Scrub

Patrol Scrubbing is a process that allows the CPU to correct correctable memory errors detected in a memory module and send the correction to the requestor (the original source). When this item is set to Enable, the IO hub will read and write back one cache line every 16K cycles if there is no delay caused by internal processing. By using this method, roughly 64 GB of memory behind the IO hub will be scrubbed every day. The options are **Enable** and Disable.

Patrol Scrub Interval

Use this item to specify the number of hours (between 0 to 24) required for the system to complete a full patrol scrubbing. Enter 0 for patrol scrubbing to be performed automatically. The default setting is **24**.

Note: This item is hidden when Patrol Scrub item is set to Disable.

Demand Scrub

Demand Scrubbing is a process that allows the CPU to correct correctable memory errors found in a memory module. When the CPU or I/O issues a demand-read command, and the read data from memory turns out to be a correctable error, the error is corrected and sent to the requestor (the original source). Memory is corrected as well. Select Enable to use Demand Scrubbing for ECC memory correction. The options are **Enable** and Disable.

Device Tagging

Select Enable to support device tagging. The options are **Disable** and Enable.

▶South Bridge

The following South Bridge information will display:

- USB Module Version
- USB Devices

Legacy USB Support

Select Enabled to support onboard legacy USB devices. Select Auto to disable legacy support if there are no legacy USB devices present. Select Disable to have all USB devices available for EFI applications only. The options are **Enabled,** Disabled and Auto.

XHCI Hand-Off

This is a work-around solution for operating systems that do not support XHCI (Extensible Host Controller Interface) hand-off. The XHCI ownership change should be claimed by the XHCI driver. The settings are **Enabled** and Disabled.

EHCI Hand-Off

This item is for operating systems that do not support Enhanced Host Controller Interface (EHCI) hand-off. When this item is enabled, EHCI ownership change will be claimed by the EHCI driver. The settings are Enabled and **Disabled**.

Port 60/64 Emulation

Select Enabled for I/O port 60h/64h emulation support, which in turn, will provide complete legacy USB keyboard support for the operating systems that do not support legacy USB devices. The options are Disabled and **Enabled**.

USB 3.0 Support

Select Enabled for USB 3.0 support. The options are Disabled, Enabled, Auto Smart and **Auto**.

EHCI1

Select Enabled to enable EHCI (Enhanced Host Controller Interface) support on USB 2.0 connector #1 (-at least one USB 2.0 connector should be enabled for EHCI support.) The options are Disabled and **Enabled**.

EHCI2

Select Enabled to enable EHCI (Enhanced Host Controller Interface) support on USB 2.0 connector #2 (-at least one USB 2.0 connector should be enabled for EHCI support.) The options are Disabled and **Enabled**.

XHCI Pre-Boot Driver

Select Enabled to enable XHCI (Extensible Host Controller Interface) support on a pre-boot drive specified by the user. The options are Enabled and **Disabled**.

▶SATA Configuration

When this submenu is selected, the AMI BIOS automatically detects the presence of the SATA devices that are supported by the Intel PCH chip and displays the following items:

SATA Controller

This item enables or disables the onboard SATA controller supported by the Intel PCH chip. The options are **Enabled** and Disabled.

Configure SATA as

Select IDE to configure a SATA drive specified by the user as an IDE drive. Select AHCI to configure a SATA drive specified by the user as an AHCI drive. Select RAID to configure a SATA drive specified by the user as a RAID drive. The options are IDE, **AHCI**, and RAID.

Note: This item is hidden when the SATA Controller item is set to Disabled.

Support Aggressive Link Power Management

When this item is set to Enabled, the SATA AHCI controller manages the power usage of the SATA link. The controller will put the link in a low power mode during extended periods of I/O inactivity, and will return the link to an active state when I/O activity resumes. The options are **Enabled** and Disabled.

Note: This item is hidden when Configuration SATA is set to IDE.

SATA RAID Option ROM/UEFI Driver

Select EFI to load the EFI driver for system boot. Select Legacy to load a legacy driver for system boot. The options are Disabled, **EFI**, and Legacy.

Note: This item is hidden when Configuration SATA is set to RAID.

SATA/sSATA RAID Boot Select

Select the SATA controller from where the system boots from. The options are **SATA Controller**, sSATA Controller and Both.

Note: This item is hidden when Configuration SATA is set to RAID. Select either SATA Controller or sSATA option as a boot volume for Windows Server 2012 R2 installation. Select BOTH for other Windows Editions.

SATA Port 0 Spin Up Device

On an edge detect from 0 to 1, set this item to allow the PCH to start a COMRESET initialization to the device. The options are Enabled and **Disabled**.

SATA Port 0 SATA Device Type

Use this item to specify if the SATA port specified by the user should be connected to a Solid State drive or a Hard Disk Drive. The options are **Hard Disk Drive** and Solid State Drive.

SATA Port 1 Spin Up Device

On an edge detect from 0 to 1, set this item to allow the PCH to start a COMRESET initialization to the device. The options are Enabled and **Disabled**.

SATA Port 1 SATA Device Type

Use this item to specify if the SATA port specified by the user should be connected to a Solid State drive or a Hard Disk Drive. The options are **Hard Disk Drive** and Solid State Drive.

SATA Port 2 Spin Up Device

On an edge detect from 0 to 1, set this item to allow the PCH to start a COMRESET initialization to the device. The options are Enabled and **Disabled**.

SATA Port 2 SATA Device Type

Use this item to specify if the SATA port specified by the user should be connected to a Solid State drive or a Hard Disk Drive. The options are **Hard Disk Drive** and Solid State Drive.

SATA Port 3 Spin Up Device

On an edge detect from 0 to 1, set this item to allow the PCH to start a COMRESET initialization to the device. The options are Enabled and **Disabled**.

SATA Port 3 SATA Device Type

Use this item to specify if the SATA port specified by the user should be connected to a Solid State drive or a Hard Disk Drive. The options are **Hard Disk Drive** and Solid State Drive.

SATA Port 4 Spin Up Device

On an edge detect from 0 to 1, set this item to allow the PCH to start a COMRESET initialization to the device. The options are Enabled and **Disabled**.

SATA Port 4 SATA Device Type

Use this item to specify if the SATA port specified by the user should be connected to a Solid State drive or a Hard Disk Drive. The options are **Hard Disk Drive** and Solid State Drive.

SATA Port 5 Spin Up Device

On an edge detect from 0 to 1, set this item to allow the PCH to start a COMRESET initialization to the device. The options are Enabled and **Disabled**.

SATA Port 5 SATA Device Type

Use this item to specify if the SATA port specified by the user should be connected to a Solid State drive or a Hard Disk Drive. The options are **Hard Disk Drive** and Solid State Drive.

▶sSATA Configuration

When this submenu is selected, the AMI BIOS automatically detects the presence of the SATA devices that are supported by the SCU controller and displays the following items:

sSATA Controller

This item enables or disables the onboard SATA controller supported by the Intel SCU chip. The options are **Enabled** and Disabled.

Configure sSATA as

Select IDE to configure an sSATA drive specified by the user as an IDE drive. Select AHCI to configure an sSATA drive specified by the user as an AHCI drive. Select RAID to configure an sSATA drive specified by the user as a RAID drive. The options are IDE, **AHCI**, and RAID.

Note: This is item is hidden when the sSATA Controller is set to Disabled.

Support Aggressive Link Power Management

When this item is set to Enabled, the SATA AHCI controller manages the power usage of the SATA link. The controller will put the link in a low power mode during extended periods of I/O inactivity, and will return the link to an active state when I/O activity resumes. The options are **Enabled** and Disabled.

Note: This item is hidden when Configuration sSATA is set to IDE.

sSATA RAID Option ROM/UEFI Driver

Select EFI to load the EFI driver for system boot. Select Legacy to load a legacy driver for system boot. The options are Disabled, **EFI**, and Legacy.

Note: This item is exposed when Configuration sSATA is set to RAID.

SATA/sSATA RAID Boot Select

Select the SATA controller from where the system boots from. The options are **SATA Controller**, sSATA Controller and Both.

Note: This item is exposed when Configuration sSATA is set to RAID. Select either SATA Controller or sSATA Controller option as a boot volume for WIndows Server 2012 R2 installation. Select BOTH for other Windows Editions.

sSATA Port 0 Spin Up Device

On an edge detect from 0 to 1, set this item to allow the PCH to start a COMRESET initialization to the device. The options are Enabled and **Disabled**.

sSATA Port 0 sSATA Device Type

Use this item to specify if the sSATA port specified by the user should be connected to a Solid State drive or a Hard Disk Drive. The options are **Hard Disk Drive** and Solid State Drive.

sSATA Port 1 Spin Up Device

On an edge detect from 0 to 1, set this item to allow the PCH to start a COMRESET initialization to the device. The options are Enabled and **Disabled**.

sSATA Port 1 sSATA Device Type

Use this item to specify if the sSATA port specified by the user should be connected to a Solid State drive or a Hard Disk Drive. The options are **Hard Disk Drive** and Solid State Drive.

sSATA Port 2 Spin Up Device

On an edge detect from 0 to 1, set this item to allow the PCH to start a COMRESET initialization to the device. The options are Enabled and **Disabled**.

sSATA Port 2 sSATA Device Type

Use this item to specify if the sSATA port specified by the user should be connected to a Solid State drive or a Hard Disk Drive. The options are **Hard Disk Drive** and Solid State Drive.

sSATA Port 3 Spin Up Device

On an edge detect from 0 to 1, set this item to allow the PCH to start a COMRESET initialization to the device. The options are Enabled and **Disabled**.

sSATA Port 3 sSATA Device Type

Use this item to specify if the sSATA port specified by the user should be connected to a Solid State drive or a Hard Disk Drive. The options are **Hard Disk Drive** and Solid State Drive.

▶Server ME (Management Engine) Configuration

This feature displays the following system ME configuration settings.

- General ME Configuration
- Operational Firmware Version
- Recovery Firmware Version
- ME Firmware Features

- ME Firmware Status #1
- ME Firmware Status #2
  - Current State
  - Error Code

▶PCIe/PCI/PnP Configuration

The following PCI information will be displayed:

- PCI Bus Driver Version
- PCI Devices Common Settings:

PCI Latency Timer

Use this feature to set the latency timer for each PCI device installed on a PCI bus. Select 32 to set the PCI latency to 32. The options are **32**, 64, 96, 128, 160, 192, 224 and 248 PCI Bus Clocks.

PCI-X Latency Timer

Use this feature to set the latency timer for each PCI device installed on a PCI bus. Select 64 to set the PCI latency to 64. The options are 32, **64**, 96, 128, 160, 192, 224 and 248 PCI Bus Clocks.

PERR# Generation

Select Enabled to allow a PCI device to generate a PERR (PCI/PCI-E Parity Error) number for a PCI bus error event. The options are Enabled and **Disabled**.

SERR# Generation

Select Enabled to allow a PCI device to generate an SERR (System Error) number for a PCI bus error event. The options are Enabled and **Disabled**.

PCI PERR/SERR Support

Use this feature to enable or disable the runtime event for PCI errors. The options are **Disabled** and Enabled.

Above 4G Decoding (Available if the system supports 64-bit PCI decoding)

Select Enabled to decode a PCI device that supports 64-bit in the space above 4G Address. The options are **Enabled** and Disabled.

SR-IOV Support (Available if the system supports Single-Root Virtualization)

Select Enabled for Single-Root IO Virtualization support. The options are Enabled and **Disabled.**

Maximum Payload

Select Auto for the system BIOS to automatically set the maximum payload value for a PCI-E device to enhance system performance. The options are **Auto**, 128 Bytes and 256 Bytes.

Maximum Read Request

Select Auto for the system BIOS to automatically set the maximum size for a read request for a PCI-E device to enhance system performance. The options are **Auto**, 128 Bytes, 256 Bytes, 512 Bytes, 1024 Bytes, 2048 Bytes, and 4096 Bytes.

ASPM Support

Use this item to set the Active State Power Management (ASPM) level for a PCI-E device. Select Auto for the system BIOS to automatically set the ASPM level based on the system configuration. Select Disabled to disable ASPM support. The options are **Disabled** and Auto.

Warning: Enabling ASPM support may cause some PCI-E devices to fail!

MMIOHBase

Use this item to select the base memory size according to memory-address mapping for the IO hub. The base memory size must be between 4032G to 4078G. The options are **56T**, 48T, 24T, 512G, and 256G.\

MMIO High Size

Use this item to select the high memory size according to memory-address mapping for the IO hub. The options are **256G**, 128G, 512G, and 1024G.

RSC-R1UFF-E16 CPU1 SLOT1 PCI-E x16 OPROM

Select Enabled to enable Option ROM support to boot the computer using a device installed on the slot specified by the user. The options are Disabled, **Legacy** and EFI.

RSC-R1UFF-E16 CPU1 SLOT2 PCI-E x16 OPROM

Select Enabled to enable Option ROM support to boot the computer using a device installed on the slot specified by the user. The options are Disabled, **Legacy** and EFI.

Note: Riser card names may differ in each system.

Onboard LAN Option ROM Type

Use this item to select the Onboard LAN Option ROM type. The options are **Legacy** and EFI.

Onboard LAN1 Option ROM

Use this option to select the type of device installed in LAN Port1 used for system boot. The default setting for LAN1 Option ROM is **PXE**.

Onboard LAN2 Option ROM

Use this option to select the type of device installed in LAN Port2 used for system boot. The default setting for LAN2 Option ROM is **Disabled**.

Load Onboard SAS Option ROM

Use this option to enable or disable

Onboard Video Option ROM

Use this item to select the Onboard Video Option ROM type. The options are **Legacy** and EFI.

VGA Priority

Use this item to select the graphics device to be used as the primary video display at bootup. The options are **Onboard** and Offboard.

Network Stack

Select Enabled to enable PXE (Preboot Execution Environment) or UEFI (Unified Extensible Firmware Interface) for network stack support. The options are **Enabled** and Disabled.

If "Network Stack" is set to Enabled, the following items will display:

Ipv4 PXE Support

Use this feature to enable Ipv4 PXE Boot Support. If this feature is disabled, it will not create the Ipv4 PXE Boot option. The options are Disabled and **Enabled**.

Ipv6 PXE Support

Use this feature to enable Ipv6 PXE Boot Support. If this feature is disabled, it will not create the Ipv6 PXE Boot option. The options are Disabled and **Enabled**.

PXE Boot Wait Time

Use this feature to select the wait time to press the ESC key to abort the PXE boot. The default is 0.

Media Detect Time

Use this feature to select the wait time in seconds to detect LAN media. The default is 0.

▶Super IO Configuration

Super IO Chip AST2400

▶Serial Port 1 Configuration

Serial Port 1

Select Enabled to enable the onboard serial port specified by the user. The options are **Enabled** and Disabled.

Device Settings

This item displays the base I/O port address and the Interrupt Request address of a serial port specified by the user.

Note: This item is hidden when Serial Port 1 is set to Disabled.

Change Port 1 Settings

This feature specifies the base I/O port address and the Interrupt Request address of Serial Port 1or Serial Port 2. Select **Auto** for the BIOS to automatically assign the base I/O and IRQ address to a serial port specified.

The options for Serial Port 1 are **Auto**, (IO=3F8h; IRQ=4), (IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12), (IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12); (IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12), and (IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12).

The options for Serial Port 2 are **Auto**, (IO=3F8h; IRQ=4), (IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12), (IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12); (IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12), and (IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12).

▶Serial Port 2 Configuration

Serial Port 2

Select Enabled to enable the onboard serial port specified by the user. The options are **Enabled** and Disabled.

Device Settings

This item displays the base I/O port address and the Interrupt Request address of a serial port specified by the user.

Note: This item is hidden when Serial Port 1 is set to Disabled.

Change Port 2 Settings

This feature specifies the base I/O port address and the Interrupt Request address of Serial Port 1or Serial Port 2. Select **Auto** for the BIOS to automatically assign the base I/O and IRQ address to a serial port specified.

The options for Serial Port 2 are **Auto**, (IO=3F8h; IRQ=4), (IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12), (IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12); (IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12), and (IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12).

Serial Port 2 Attribute

Select SOL to use COM Port 2 as a Serial_Over_LAN (SOL) port for console redirectoin. The options are COM and **SOL**.

▶Serial Port Console Redirection

COM 1 Console Redirection

Select Enabled to enable COM Port 1 for Console Redirection, which will allow a client machine to be connected to a host machine at a remote site for networking. The options are Enabled and **Disabled**.

▶COM1 Console Redirection

Out-of-Band Management Port

The feature selects a serial port in a client server to be used by the Microsoft Windows Emergency Management Services (EMS) to communicate with a remote host server. The options are **COM1** and COM2/SOL.

Terminal Type

This feature allows the user to select the target terminal emulation type for Console Redirection. Select VT100 to use the ASCII Character set. Select VT100+ to add color and function key support. Select ANSI to use the Extended ASCII Character Set. Select VT-UTF8 to use UTF8 encoding to map Unicode characters into one or more bytes. The options are ANSI, VT100, **VT100+**, and VT-UTF8.

Bits Per second

Use this item to set the transmission speed for a serial port used in Console Redirection. Make sure that the same speed is used in the host computer and the client computer. A lower transmission speed may be required for long and busy lines. The options are 9600, 19200, 38400, 57600 and **115200** (bits per second).

Data Bits

Use this feature to set the data transmission size for Console Redirection. The options are 7 (Bits) and **8 (Bits)**.

Parity

A parity bit can be sent along with regular data bits to detect data transmission errors. Select Even if the parity bit is set to 0, and the number of 1's in data bits is even. Select Odd if the parity bit is set to 0, and the number of 1's in data bits is odd. Select None if you do not want to send a parity bit with your data bits in transmission. Select Mark to add a mark as a parity bit to be sent along with the data bits. Select Space to add a Space as a parity bit to be sent with your data bits. The options are **None**, Even, Odd, Mark and Space.

Stop Bits

A stop bit indicates the end of a serial data packet. Select 1 Stop Bit for standard serial data communication. Select 2 Stop Bits if slower devices are used. The options are **1** and 2.

Flow Control

Use this item to set the flow control for Console Redirection to prevent data loss caused by buffer overflow. Send a "Stop" signal to stop sending data when the receiving buffer is full. Send a "Start" signal to start sending data when the receiving buffer is empty. The options are **None** and Hardware RTS/CTS.

VT-UTF8 Combo Key Support

Select Enabled to enable VT-UTF8 Combination Key support for ANSI/VT100 terminals. The options are **Enabled** and Disabled**.**

Recorder Mode

Select Enabled to capture the data displayed on a terminal and send it as text messages to a remote server. The options are **Disabled** and Enabled.

Resolution 100x31

Select Enabled for extended-terminal resolution support. The options are Disabled and **Enabled**.

Legacy OS Redirection Resolution

Use this item to select the number of rows and columns used in Console Redirection for legacy OS support. The options are 80x24 and **80x25**.

Putty KeyPad

This feature selects Function Keys and KeyPad settings for Putty, which is a terminal emulator designed for the Windows OS. The options are **VT100**, LINUX, XTERMR6, SCO, ESCN, and VT400.

Redirection After BIOS Post

Use this feature to enable or disable legacy Console Redirection after BIOS POST. When set to Bootloader, legacy Console Redirection is disabled before booting the OS. When set to Always Enable, legacy Console Redirection remains enabled when booting the OS. The options are **Always Enable** and Bootloader.

▶SOL/COM2 Console Redirection Settings

Use this feature to specify how the host computer will exchange data with the client computer, which is the remote computer used by the user.

Out-of-Band Management Port

The feature selects a serial port in a client server to be used by the Microsoft Windows Emergency Management Services (EMS) to communicate with a remote host server. The options are **COM1** and COM2/SOL.

Terminal Type

Use this feature to select the target terminal emulation type for Console Redirection. Select VT100 to use the ASCII Character set. Select VT100+ to add color and function key support. Select ANSI to use the Extended ASCII Character Set. Select VT-UTF8 to use UTF8 encoding to map Unicode characters into one or more bytes. The options are ANSI, VT100, **VT100+**, and VT-UTF8.

Bits Per second

Use this feature to set the transmission speed for a serial port used in Console Redirection. Make sure that the same speed is used in the host computer and the client computer. A lower transmission speed may be required for long and busy lines. The options are 9600, 19200, 38400, 57600 and **115200** (bits per second).

Data Bits

Use this feature to set the data transmission size for Console Redirection. The options are 7 (Bits) and **8 (Bits)**.

Parity

A parity bit can be sent along with regular data bits to detect data transmission errors. Select Even if the parity bit is set to 0, and the number of 1's in data bits is even. Select Odd if the parity bit is set to 0, and the number of 1's in data bits is odd. Select None if you do not want to send a parity bit with your data bits in transmission. Select Mark to add a mark as a parity bit to be sent along with the data bits. Select Space to add a Space as a parity bit to be sent with your data bits. The options are **None**, Even, Odd, Mark and Space.

Stop Bits

A stop bit indicates the end of a serial data packet. Select 1 Stop Bit for standard serial data communication. Select 2 Stop Bits if slower devices are used. The options are **1** and 2.

Flow Control

Use this feature to set the flow control for Console Redirection to prevent data loss caused by buffer overflow. Send a "Stop" signal to stop sending data when the receiving buffer is full. Send a "Start" signal to start sending data when the receiving buffer is empty. The options are **None** and Hardware RTS/CTS.

VT-UTF8 Combo Key Support

Select Enabled to enable VT-UTF8 Combination Key support for ANSI/VT100 terminals. The options are **Enabled** and Disabled**.**

Recorder Mode

Select Enabled to capture the data displayed on a terminal and send it as text messages to a remote server. The options are **Disabled** and Enabled.

Resolution 100x31

Select Enabled for extended-terminal resolution support. The options are Disabled and **Enabled**.

Legacy OS Redirection Resolution

Use this feature to select the number of rows and columns used in Console Redirection for legacy OS support. The options are 80x24 and **80x25**.

Putty KeyPad

This feature selects Function Keys and KeyPad settings for Putty, which is a terminal emulator designed for the Windows OS. The options are **VT100**, LINUX, XTERMR6, SCO, ESCN, and VT400.

Redirection After BIOS Post

Use this feature to enable or disable legacy Console Redirection after BIOS POST. When set to Bootloader, legacy Console Redirection is disabled before booting the OS. When set to Always Enable, legacy Console Redirection remains enabled when booting the OS. The options are **Always Enable** and Bootloader.

Serial Port for Out-of-Band Management/Windows Emergency Management Services (EMS)

The submenu allows the user to configure Console Redirection settings to support Out-of-Band Serial Port management.

EMS (Emergency Management Services) Console Redirection

Select Enabled to use a COM port selected by the user for EMS Console Redirection. The options are Enabled and **Disabled.**

If the item above set to Enabled, the following items will become available for user's configuration:

▶EMS Console Redirection Settings

This feature allows the user to specify how the host computer will exchange data with the client computer, which is the remote computer used by the user.

Out-of-Band Management Port

The feature selects a serial port in a client server to be used by the Microsoft Windows Emergency Management Services (EMS) to communicate with a remote host server. The options are **COM1** and COM2/SOL.

Terminal Type

Use this feature to select the target terminal emulation type for Console Redirection. Select VT100 to use the ASCII character set. Select VT100+ to add color and function key support. Select ANSI to use the extended ASCII character set. Select VT-UTF8 to use UTF8 encoding to map Unicode characters into one or more bytes. The options are ANSI, VT100, VT100+, and **VT-UTF8**.

Bits Per Second

This item sets the transmission speed for a serial port used in Console Redirection. Make sure that the same speed is used in the host computer and the client computer. A lower transmission speed may be required for long and busy lines. The options are 9600, 19200, 57600, and **115200** (bits per second).

Flow Control

Use this item to set the flow control for Console Redirection to prevent data loss caused by buffer overflow. Send a "Stop" signal to stop sending data when the receiving buffer is full. Send a "Start" signal to start sending data when the receiving buffer is empty. The options are **None,** Hardware RTS/CTS, and Software Xon/Xoff.

Data Bits

Use this feature to set the data transmission size for Console Redirection. The options are 7 (Bits) and **8 (Bits)**.

Parity

A parity bit can be sent along with regular data bits to detect data transmission errors. Select Even if the parity bit is set to 0, and the number of 1's in data bits is even. Select Odd if the parity bit is set to 0, and the number of 1's in data bits is odd. Select None if you do not want to send a parity bit with your data bits in transmission. Select Mark to add a mark as a parity bit to be sent along with the data bits. Select Space to add a Space as a parity bit to be sent with your data bits. The options are **None**, Even, Odd, Mark and Space.

Stop Bits

A stop bit indicates the end of a serial data packet. Select 1 Stop Bit for standard serial data communication. Select 2 Stop Bits if slower devices are used. The options are **1** and 2.

▶ACPI Settings

Use this feature to configure Advanced Configuration and Power Interface (ACPI) power management settings for your system.

WHEA Support

Select Enabled to support the Windows Hardware Error Architecture (WHEA) platform and provide a common infrastructure for the system to handle hardware errors within the Windows OS environment to reduce system crashes and to enhance system recovery and health monitoring. The options are Enabled and **Disabled**.

High Precision Timer

Select Enabled to activate the High Precision Event Timer (HPET) that produces periodic interrupts at a much higher frequency than a Real-time Clock (RTC) does in synchronizing multimedia streams, providing smooth playback and reducing the dependency on other timestamp calculation devices, such as an x86 RDTSC Instruction embedded in the CPU. The High Performance Event Timer is used to replace the 8254 Programmable Interval Timer. The options are **Enabled** and Disabled.

NUMA Support (Available when the OS supports this feature)

Select Enabled to enable Non-Uniform Memory Access support to enhance system performance. The options are **Enabled** and Disabled.

PCI AER Support

Select Enabed to enable the ACPI OS to manage PCI Advanced Error Reporting. The options are Enabled and **Disabled**.

▶Trusted Computing (Available when a TPM device is installed and detected by the BIOS)

Configuration

Security Device Support

If this feature and the TPM jumper on the motherboard are both set to Enabled, onboard security devices will be enabled for TPM support to enhance data integrity and network security. Please reboot the system for a change on this setting to take effect. The options are Enabled and **Disabled**.

TPM State

Select Enabled to use TPM (Trusted Platform Module) settings to enhance system data security. Please reboot your system for any change on the TPM state to take effect. The options are Disabled and **Enabled**.

Pending Operation

Use this item to schedule a TPM-related operation to be performed by a security device for system data integrity. Your system will reboot to carry out a pending TPM operation. The options are **None**, Enable Take Ownership, Disable Take Ownership, and TPM Clear.

Note: Your system will reboot to carry out a pending TPM operation.

Current Status Information

This item displays the status of the TPM support on this motherboard.

- TPM Enabled Status
- TPM Active Status
- TPM Owner Status

▶Intel TXT (LT-SX) Confirguration

Intel TXT (LT-SX) Hardware Support

This feature indicates if the following hardware components support the Intel Trusted Execution Technology.

CPU: TXT (Trusted Execution Technology) Feature

Chipset: TXT (Trusted Execution Technology) Feature

Intel TXT (LT-SX) Configuration

This feature displays the following TXT configuration setting.

TXT (LT-SX) Support: This item indicates if the Intel TXT support is enabled or disabled. The default setting is **Disabled**.

Intel TXT (LT-SX) Dependencies

This feature displays the features that need to be enabled for the Intel Trusted Execution Technology to work properly in the system.

VT-d Support: Intel Virtualization Technology with Direct I/O support

VT Support: Intel Virtualization Technology support

TPM Support: Trusted Platform support

TPM State: Trusted Platform state

▶iSCSI Confirguration

iSCSI Initiator Name

This item displays the name of the iSCSI Initiator, which is a unique name used in the world. The name must use IQN format. The following actions can also be performed:

- Add an Attempt
- Delete Attempts
  - Commit Changes and Exit
  - Discard Changes and Exit
- Change Attempt Order
  - Commit Changes and Exit
  - Discard Changes and Exit

Intel® I350 Gigabit Network Connections

These items display the following information on the Intel I350 LAN connections.

▶NIC Configuration

Link Speed

Use this feature to change the link speed and duplex for the current port. The options are **AutoNeg**, 10Mbps Half, 10Mbps Full, 100Mbps Half, and 100Mbps full.

Wake on LAN

Select enabled to wake the system with a magic packet. The options are **Enabled** and Disabled.

Blink LEDs

This feature allows the user to specify the duration for LEDs to blink. The range is from 0 ~ 15 seconds. The default setting is **0**.

PORT CONFIGURATION INFORMATION

This section displays the following port information:

- UEFI Driver
- Adapter PBA
- Chip Type
- PCI Device ID
- PCI Bus:Device:Function
- Link Status
- Factory MAC Address
- Alternate MAC Address

▶Intel RSTe SATA Controller

When this submenu is selected, the AMI BIOS automatically detects the presence of the SATA devices that are supported by the Intel PCH chip and displays the following items:

Note: This item is exposed if the PCH controller is a C220 series controller, and the Launch Storage OpROM Policy item is set to UEFI only and the SATA Mode Selection is set to RAID with RSTe 3.7.

SATA RAID Legacy OpROM

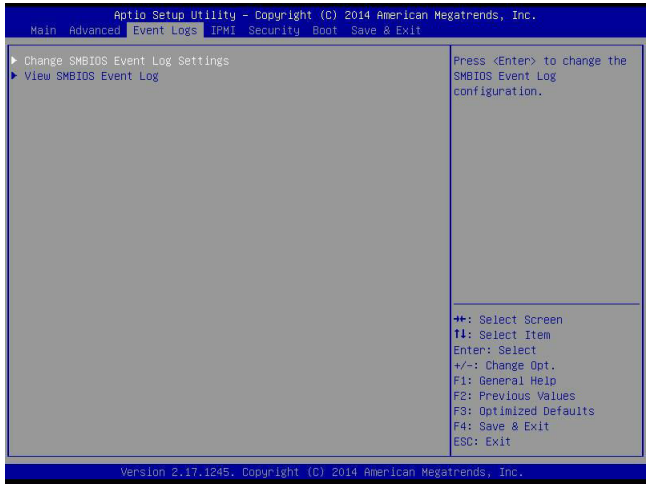
When the Launch Storage OpROM Policy is set to Legacy and SATA Mode Selection is set to RAID, the SATA RAID Legacy OpROM will shadow. The options are Disabled, **Legacy**, and RAID..

UEFI SATA RAID

When the Launch Storage OpROM Policy is set to UEFI and SATA Mode Selection is set to RAID, the UEFI SATA RAID driver will install and show up on the setup menu. The options are Disabled, **UEFI**, and RAID.

4-4 Event Logs

Use this feature to configure Event Log settings.


Aptio Setup Utility – Copyright (C) 2014 American Megatrends, Inc.
Main Advanced Event Logs IPMI Security Boot Save & Exit
Change SMBIOS Event Log Settings
View SMBIOS Event Log
Press <Enter> to change the SMBIOS Event Log configuration.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.17.1245. Copyright (C) 2014 American Megatrends, Inc.

▶Change SMBIOS Event Log Settings

This feature allows the user to configure SMBIOS Event settings.

Enabling/Disabling Options

SMBIOS Event Log

Select Enabled to enable SMBIOS (System Management BIOS) Event Logging during system boot. The options are **Enabled** and Disabled.

Runtime Error Logging Support

Select Enabled to support Runtime Error Logging. The options are **Enable** and Disable. If this item is set to Enable, the following item will be available for configuration:

Memory Corrected Error Enabling (Available when the item above-Runtime Error Logging Support is set to Enable)

Select Enable for the BIOS to correct a memory error if it is correctable. The options are **Enable** and Disable.

Memory Correctable Error Threshold

Use this item to enter the threshold value for correctable memory errors. The default setting is **10**.

PCI-Ex (PCI-Express) Error Enable

Select Yes for the BIOS to correct errors occurred in the PCI-E slots. The options are Yes and **No**.

Erasing Settings

Erase Event Log

Select Enabled to erase all error events in the SMBIOS (System Management BIOS) log before an event logging is initialized at bootup. The options are **No** and Yes.

When Log is Full

Select Erase Immediately to immediately erase all errors in the SMBIOS event log when the event log is full. Select Do Nothing for the system to do nothing when the SMBIOS event log is full. The options are **Do Nothing** and Erase Immediately.

SMBIOS Event Log Standard Settings

Log System Boot Event

Select Enabled to log system boot events. The options are **Disabled** and Enabled.

MECI (Multiple Event Count Increment)

Enter the increment value for the multiple event counter. Enter a number between 1 to 255. The default setting is **1**.

METW (Multiple Event Count Time Window)

This item is used to determine how long (in minutes) should the multiple event counter wait before generating a new event log. Enter a number between 0 to 99. The default setting is **60**.

Note: Please reboot the system for the changes to take effect.

4-5 IPMI

Use this feature to configure Intelligent Platform Management Interface (IPMI) settings.

Aptio Setup Utility – Copyright (C) 2014 American Megatrends, Inc.
Main Advanced Event Logs IPMI Security Boot Save & Exit
BMC Firmware Revision 1.51
IPMI STATUS Working
System Event Log
BMC Network Configuration
Press <Enter> to change the SEL event log configuration.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.17.1245. Copyright (C) 2014 American Megatrends, Inc.

IPMI Firmware Revision

This item indicates the IPMI firmware revision used in your system.

IPMI Status

This item indicates the status of the IPMI firmware installed in your system.

▶System Event Log

Enabling/Disabling Options

SEL Components

Select Enabled for all system event logging at bootup. The options are **Enabled** and Disabled.

Erasing Settings

Erase SEL

Select Yes, On next reset to erase all system event logs upon next system reboot. Select Yes, On every reset to erase all system event logs upon each system reboot. Select No to keep all system event logs after each system reboot. The options are **No,** Yes, On next reset, and Yes, On every reset.

When SEL is Full

This feature allows the user to determine what the BIOS should do when the system event log is full. Select Erase Immediately to erase all events in the log when the system event log is full. The options are **Do Nothing** and Erase Immediately.

Note: After making changes on a setting, be sure to reboot the system for the changes to take effect.

▶BMC Network Configuration

The following items will be displayed:

IPMI LAN Selection

This item displays the IPMI LAN setting. The default setting is **Failover**.

IPMI Network Link Status

This item displays the IPMI Network Link status. The default setting is **Shared LAN**.

Update IPMI LAN Configuration

Select Yes for the BIOS to implement all IP/MAC address changes at the next system boot. The options are **No** and Yes

Configuration Address Source

Use this item to select the source of the IP address for this computer. If Static is selected, you will need to know the IP address of this computer and enter it to the system manually in the field. If DHCP is selected, the BIOS will search for a DHCP (Dynamic Host Configuration Protocol) server in the network that is attached to and request the next available IP address for this computer. The options are **DHCP** and Static.

The following items are assigned IP addresses automatically if DHCP is selected, or they can be configured manually if Static is selected.

Station IP Address

This item displays the Station IP address for this computer. This should be in decimal and in dotted quad form (i.e., 192.168.10.253).

Subnet Mask

This item displays the sub-network that this computer belongs to. The value of each three-digit number separated by dots should not exceed 255.

Station MAC Address

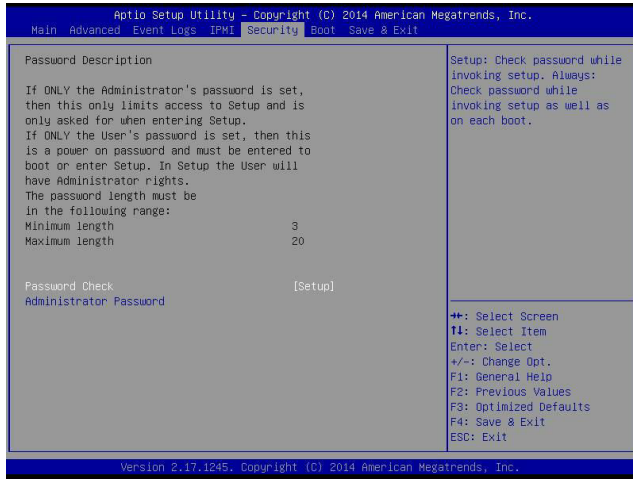
This item displays the Station MAC address for this computer. Mac addresses are 6 two-digit hexadecimal numbers.

Gateway IP Address

This item displays the Gateway IP address for this computer. This should be in decimal and in dotted quad form (i.e., 192.168.10.253).

4-6 Security Settings

This menu allows the user to configure the following security settings for the system.


Aptio Setup Utility – Copyright (C) 2014 American Megatrends, Inc.
Main Advanced Event Logs IPMI Security Boot Save & Exit
Password Description
If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup.
If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights.
The password length must be in the following range:
Minimum length 3
Maximum length 20
Password Check [Setup]
Administrator Password
Setup: Check password while invoking setup. Always: Check password while invoking setup as well as on each boot.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.17.1245. Copyright (C) 2014 American Megatrends, Inc.

Password Check

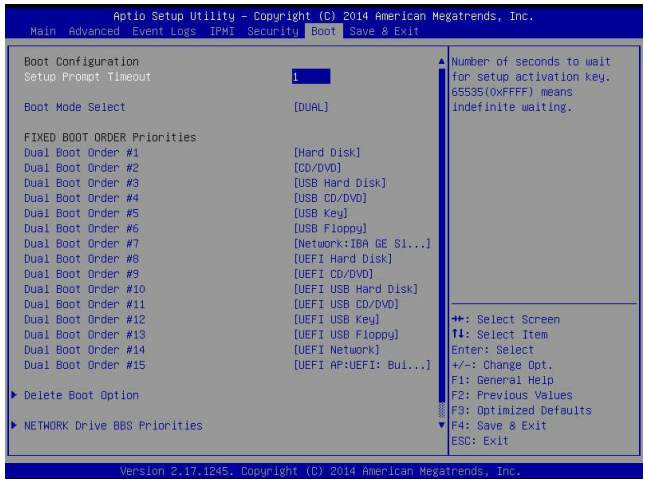
Select Setup for the system to check for a password at Setup. Select Always for the system to check for a password at bootup or upon entering the BIOS Setup utility. The options are **Setup** and Always.

Administrator Password

Use this feature to set the administrator password which is required to enter the BIOS setup utility. The length of the password should be from 3 characters to 20 characters long.

4-7 Boot Settings

Use this feature to configure Boot Settings:



Setup Prompt Timeout

Use this item to indicate the length of time (the number of seconds) for the BIOS to wait before rebooting the system when the setup activation key is pressed. Enter the value of 65535 (0xFFFF) for the BIOS to wait indefinitely. The default setting is **1**.

Boot Mode Select

Use this item to select the type of device that the system is going to boot from. The options are Legacy, UEFI, and **Dual.** The default setting is Dual.

Fixed Boot Order Priorities

This option prioritizes the order of bootable devices that the system to boot from. Press <Enter> on each entry from top to bottom to select devices.

- Dual Boot Order #1
- Dual Boot Order #2
- Dual Boot Order #3
- Dual Boot Order #4
- Dual Boot Order #5
- Dual Boot Order #6
- Dual Boot Order #7

- Dual Boot Order #8
- Dual Boot Order #9
- Dual Boot Order #10
- Dual Boot Order #11
- Dual Boot Order #12
- Dual Boot Order #13
- Dual Boot Order #14
- Dual Boot Order #15

Add New Boot Option

This feature allows the user to add a new boot option to system boot priority features.

Add Boot Option

Use this item to specify the name of the driver that the new boot option is added to.

Path for Boot Option

This item is used to specify the path to the driver that the new boot option is added to. The format for the path is "fsx:\path\filename.efi".

Boot Option File Path

Create

After the driver option name and the file path are set, press <Enter> to enter to submenu and click OK to create the new boot option drive.

▶Delete Boot Option

Use this item to select a boot device to delete from the boot priority list.

Delete Boot Option

Select the target boot device to delete.

▶Hard Disk Drive BBS Priorities

- Legacy Boot Order #1 - This feature sets the system boot order of detected devices. The options are **[the list of detected boot device(s)]** and Disabled.

▶**Network Drive BBS Priorities**

- Legacy Boot Order #1 - This feature sets the system boot order of detected devices. The options are **[the list of detected boot device(s)]** and Disabled.

▶**USB Key Drive BBS Priorities**

- Legacy Boot Order #1 - This feature sets the system boot order of detected devices. The options are **[the list of detected boot device(s)]** and Disabled.

▶**UEFI USB Key Drive BBS Priorities**

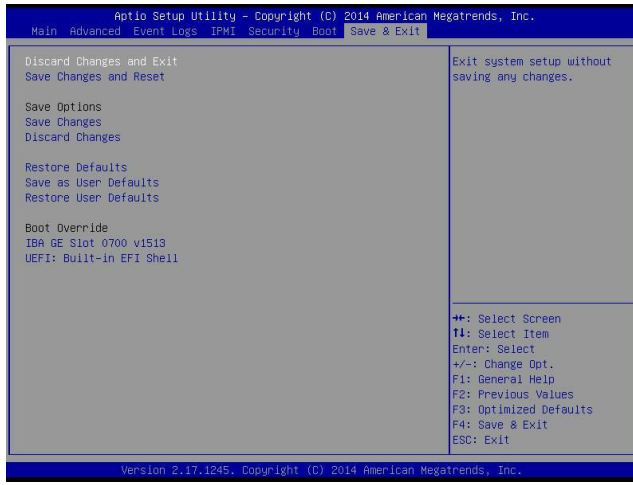
- Boot Order #1 - This feature sets the system boot order of detected devices. The options are **[the list of detected boot device(s)]** and Disabled.

▶**UEFI Application Boot Priorities**

- UEFI Boot Order # - This feature sets the system boot order of detected devices. The options are **[the list of detected boot device(s)]** and Disabled. 1

4-8 Save & Exit

Select the Save & Exit tab from the BIOS setup screen to configure the settings below.


Aptio Setup Utility – Copyright (C) 2014 American Megatrends, Inc.
Main Advanced Event Logs IPMI Security Boot Save & Exit
Discard Changes and Exit
Save Changes and Reset
Save Options
Save Changes
Discard Changes
Restore Defaults
Save as User Defaults
Restore User Defaults
Boot Override
IBA GE Slot 0700 v1513
UEFI: Built-in EFI Shell
Exit system setup without saving any changes.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
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Discard Changes and Exit

Select this option to quit the BIOS setup without making any permanent changes to the system configuration, and reboot the computer. Select Discard Changes and Exit from the Exit menu and press <Enter>.

Save Changes and Reset

When you have completed the system configuration changes, select this option to leave the BIOS setup utility and reboot the computer for the new system configuration parameters can take effect. Select Save Changes and Exit from the Exit menu and press <Enter>.

Save Options

Save Changes

When you have completed the system configuration changes, select this option to save all changes made. This will not reset (reboot) the system.

Discard Changes

Select this option and press <Enter> to discard all the changes and return to the AMI BIOS Utility Program.

Restore Defaults

To set this feature, select Restore Defaults from the Exit menu and press <Enter>. These are factory settings designed for maximum system performance but not for maximum stability.

Save As User Defaults

To set this feature, select Save as User Defaults from the Exit menu and press <Enter>. This enables the user to save any changes to the BIOS setup for future use.

Restore User Defaults

To set this feature, select Restore User Defaults from the Exit menu and press <Enter>. Use this feature to retrieve user-defined settings that were saved previously.

Boot Override

This feature allows the user to override the Boot Option Priorities sequence in the Boot menu, and immediately boot the system with another device specified by the user. This is a one-time override.

Appendix A

BIOS Error Beep Codes

During the POST (Power-On Self-Test) routines, which are performed each time the system is powered on, errors may occur.

Non-fatal errors are those which, in most cases, allow the system to continue with bootup. The error messages normally appear on the screen.

Fatal errors will not allow the system to continue to bootup. If a fatal error occurs, you should consult with your system manufacturer for possible repairs.

These fatal errors are usually communicated through a series of audible beeps. The numbers on the fatal error list correspond to the number of beeps for the corresponding error.

A-1 BIOS Error Beep Codes

BIOS Error Beep Codes		
Beep Code/LED	**Error Message**	**Description**
1 beep	Refresh	Circuits have been reset. (Ready to power up)
5 short beeps + 1 long beep	Memory error	No memory detected in the system
5 beeps	Display memory read/write error	Video adapter missing or with faulty memory
1 continuous beep	System OH	System Overheat

Notes

Appendix B

Software Installation Instructions

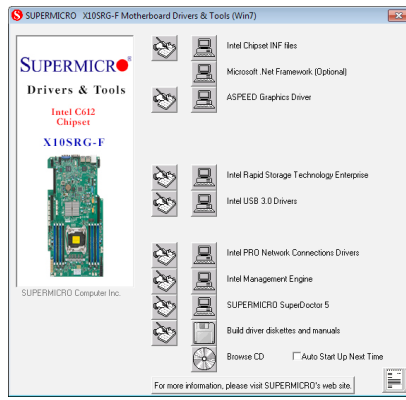
B-1 Installing Software Programs

The Supermicro ftp site contains drivers and utilities for your system at ftp://ftp.supermicro.com. Some of these must be installed, such as the chipset driver.

After accessing the ftp site, go into the CDR_Images directory and locate the ISO file for your motherboard. Download this file to create a CD/DVD of the drivers and utilities it contains. (You may also use a utility to extract the ISO file if preferred.)

Another option is to go to the Supermicro Website at http://www.supermicro.com/products/. Find the product page for your motherboard here, where you may download individual drivers and utilities.

After creating a CD/DVD with the ISO files, insert the disk into the CD/DVD drive on your system and the display shown below should appear.



Driver/Tool Installation Display Screen

Note 1: Click the icons showing a hand writing on paper to view the readme files for each item. Click the computer icons to the right of these items to install each item (from top to the bottom) one at a time. **After installing each item, you must re-boot the system before moving on to the next item on the list.** The bottom icon with a CD on it allows you to view the entire contents.

Note 2: When making a storage driver diskette by booting into a Driver CD, please set the SATA Configuration to "Compatible Mode" and configure SATA as IDE in the BIOS Setup. After making the driver diskette, be sure to change the SATA settings back to your original settings.

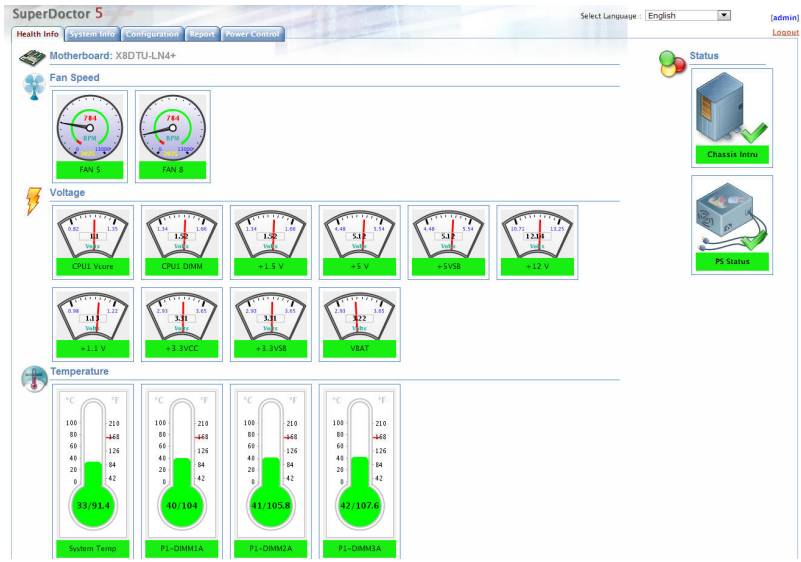
B-2 Installing SuperDoctor5

The Supermicro SuperDoctor® 5 is a hardware monitoring program that functions in a command-line or web-based interface in Windows and Linux operating systems. The program monitors system health information such as CPU temperature, system voltages, system power consumption, fan speed, and provides alerts via email or Simple Network Management Protocol (SNMP).

SuperDoctor 5 comes in local and remote management versions and can be used with Nagios to maximize your system monitoring needs. With SuperDoctor 5 Management Server (SSM Server), you can remotely control power on/off and reset chassis intrusion for multiple systems with SuperDoctor 5 or IPMI. SD5 Management Server monitors HTTP, FTP, and SMTP services to optimize the efficiency of your operation.

Note: The default User Name and Password for SuperDoctor 5 is admin /admin.

SuperDoctor 5 Interface Display Screen (Health Information)



Note: The SuperDoctor 5 program and User's Manual can be downloaded from the Supermicro web site at http://www.supermicro.com/products/nfo/sms_sd5.cfm.

Appendix C

UEFI BIOS Recovery Instructions

Warning: Do not upgrade the BIOS unless your system has a BIOS-related issue. Flashing the wrong BIOS can cause irreparable damage to the system. In no event shall Supermicro be liable for direct, indirect, special, incidental, or consequential damages arising from a BIOS update. If you need to update the BIOS, do not shut down or reset the system while the BIOS is updating to avoid possible boot failure.

An Overview to the UEFI BIOS

The Unified Extensible Firmware Interface (UEFI) specification provides a software-based interface between the operating system and the platform firmware in the pre-boot environment. The UEFI specification supports an architecture-independent mechanism for add-on card initialization to allow the UEFI OS loader, which is stored in the add-on card, to boot up the system. UEFI offers a clean, hand-off control to a computer system at bootup.

How to Recover the UEFI BIOS Image (-the Main BIOS Block)

An AMIBIOS flash chip consists of a boot sector block and a main BIOS code block (a main BIOS image). The boot sector block contains critical BIOS codes, including memory detection and recovery codes for the user to flash a new BIOS image if the original BIOS image is corrupted. When the system power is on, the boot sector codes execute first. Once it is completed, the main BIOS code will continue with system initialization and bootup.

Note: Follow the BIOS Recovery instructions below for BIOS recovery when the main BIOS block crashes. However, when the BIOS Boot sector crashes, you will need to send the motherboard back to Supermicro for RMA repair.

To Recover the Main BIOS Block Using a USB-Attached Device

This feature allows the user to recover a BIOS image using a USB-attached device without additional utilities used. A USB flash device such as a USB Flash Drive, or a USB CD/DVD ROM/RW device can be used for this purpose. However, a USB Hard Disk drive cannot be used for BIOS recovery at this time.

To perform UEFI BIOS recovery using a USB-attached device, follow the instructions below.

1. Using a different machine, copy the "Super.ROM" binary image file into the disc Root "\" Directory of a USB device or a writeable CD/DVD.

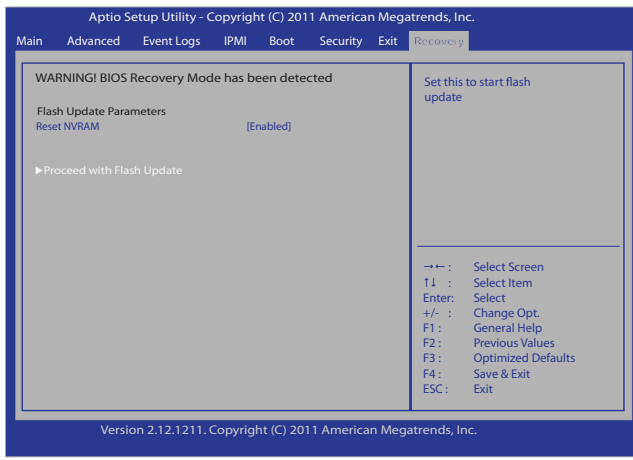
Note: If you cannot locate the "Super.ROM" file in your driver disk, visit our website at www.supermicro.com to download the BIOS image into a USB flash device and rename it to "Super.ROM" for BIOS recovery use.

2. Insert the USB device that contains the new BIOS image ("Super.Rom") into your USB drive and power on the system

3. While powering on the system, keep pressing <Ctrl> and <Home> simultaneously on your PS2 or USB keyboard until your hear two short beeps. This may take from a few seconds to one minute.

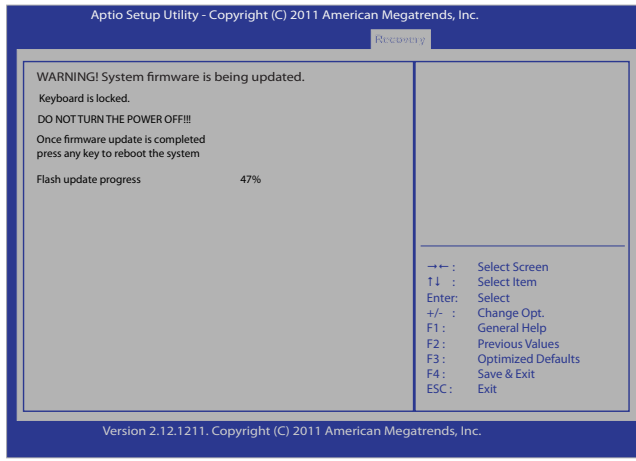
4. After locating the new BIOS binary image, the system will enter the BIOS Recovery page as shown below.

Note: At this point, you may decide if you want to start with BIOS Recovery. If you decide to proceed with BIOS Recovery, follow the procedures below.

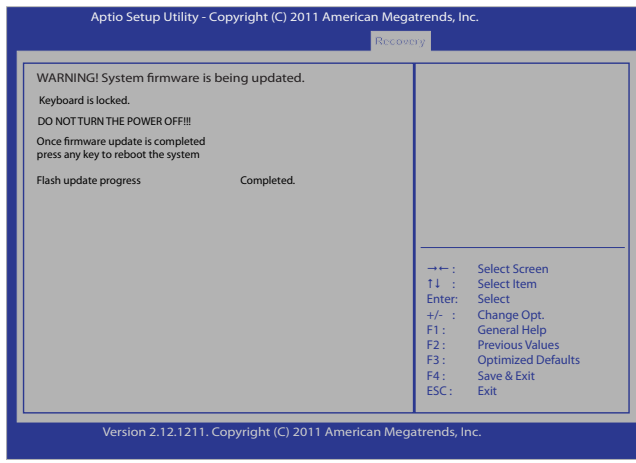


5. When the screen as shown above displays, using the arrow key, select the item- "Proceed with flash update" and press the <Enter> key. You will see the progress of BIOS Recovery as shown in the screen below.

Note: *Do not interrupt* the process of BIOS flashing until it is completed.


Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
Recovery
WARNING! System firmware is being updated.
Keyboard is locked.
DO NOT TURN THE POWER OFF!!!
Once firmware update is completed
press any key to reboot the system
Flash update progress 47%
→←: Select Screen
↑↓ : Select Item
Enter: Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.12.1211. Copyright (C) 2011 American Megatrends, Inc.

6. After the process of BIOS Recovery is complete, press any key to reboot the system.


Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
Recovery
WARNING! System firmware is being updated.
Keyboard is locked.
DO NOT TURN THE POWER OFF!!!
Once firmware update is completed
press any key to reboot the system
Flash update progress Completed.
→←: Select Screen
↑↓ : Select Item
Enter: Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.12.1211. Copyright (C) 2011 American Megatrends, Inc.

7. Using a different system, extract the BIOS package into a bootable USB flash drive.

8. When a DOS prompt appears, type AMI.BAT BIOSname.### at the prompt.

Note: *Do not interrupt* this process until BIOS flashing is completed.

9. After seeing the message that BIOS update is completed, unplug the AC power cable to clear CMOS, and then plug in the AC power cable to power on the system.

10. Press <Del> continuously to enter the BIOS Setup utility.

11. Press <F3> to load default settings.

12. After loading default settings, press <F4> to save the settings and exit the BIOS Setup utility.

Appendix D

Dual Boot Block on Grantley Platforms

Overview

On X10 Grantley platforms, Supermicro introduces the Dual Boot Block feature that revives the system from an inert state if the primary boot block in the ROM chip is damaged. A boot block carries critical codes to boot the system with minimum hardware requirements for the BIOS recovery flash.

In the previous generation platforms, there is an onboard jumper called JBR1 to activate the secondary boot block in the ROM chip. However, it is not convenient for data centers and enterprises.

This document describes how to enable the BIOS recovery flash by using the Dual Boot Block feature through IPMI GUI browser and IPMI Command Sets on the X10 Grantley platforms.

Before Startup

A USB flash drive with FAT32 file system and Super.ROM stored are required, and the USB flash drive does not need to be bootable. IPMI firmware that is capable of supporting BIOS Resilience function in IPMI browser and of mounting virtual media via OEM CMDs is required, too. The SMCIPMITool is needed if Dual Boot Block is activated by IPMI Command Sets as stated in Section D-2.

When to Use Dual Boot Block

The primary dual block can get corrupted when it is flashing and encounters a power outage. The system does not respond nor output video at all after power-on. The secondary boot block can be activated to kick in the BIOS recovery flash.

How to Use Dual Boot Block

Two methods on how to use the Dual Boot Block feature are introduced in the following pages:

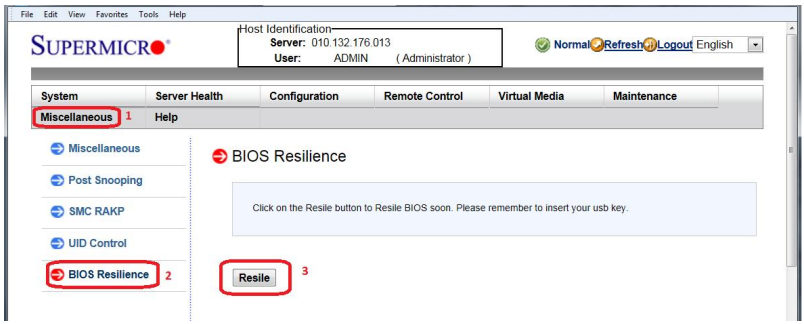
1. Through the IPMI GUI Browser
2. Through the IPMI Command Sets

These are user-attended operations. IPMI logic on the defective system has to be alive and functioning. IPMI IP is known to the user.

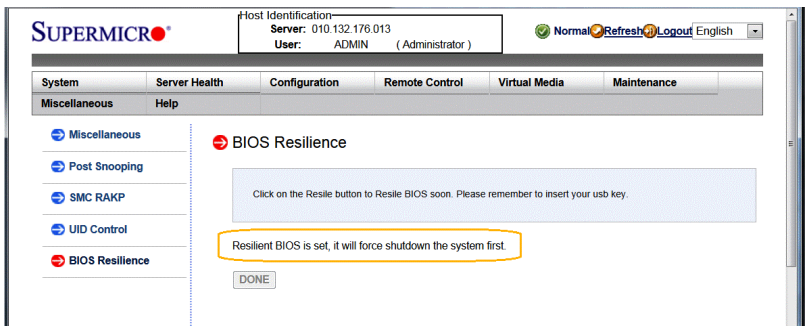
D-1 IPMI GUI Browser

To perform perform the Dual Boot Block through the IPMI GUI browser, follow the instructions below:

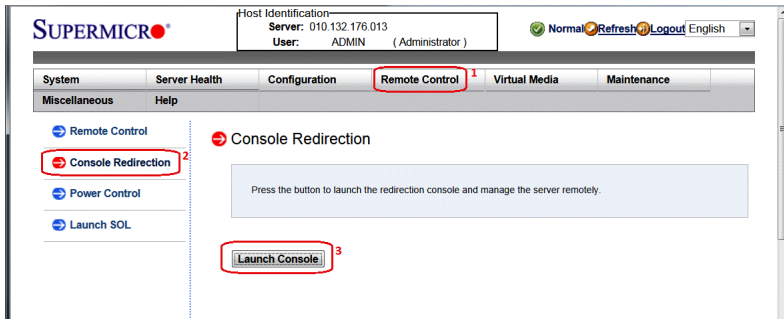
1. After the IPMI GUI browser log-in, click on the Miscellaneous tab, then BIOS Resilience, then the Resile button.



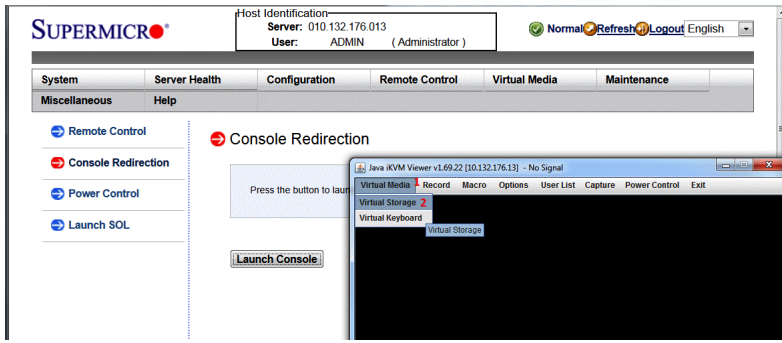
2. IPMI prints out a message that indicates the secondary boot block activation. If the system is on, IPMI forces it to shut down.



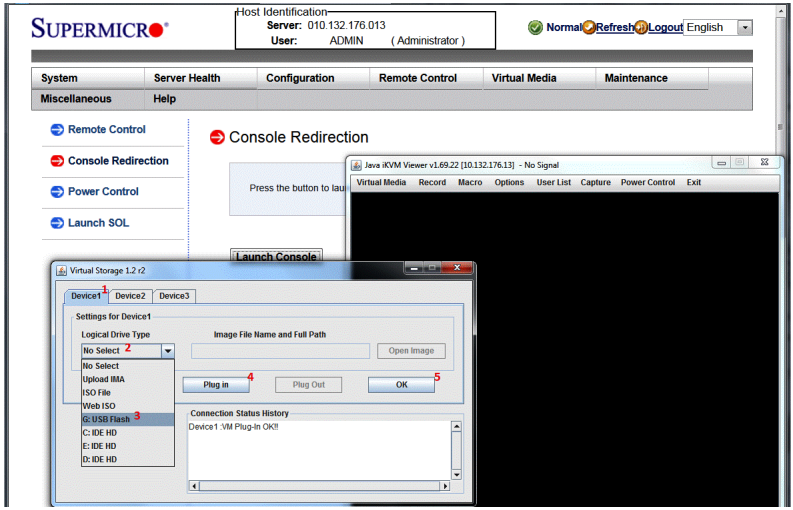
3. Click on the **Remote Control** tab, then Console Redirection, then the **Launch Console** button to open the Java iKVM Viewer.



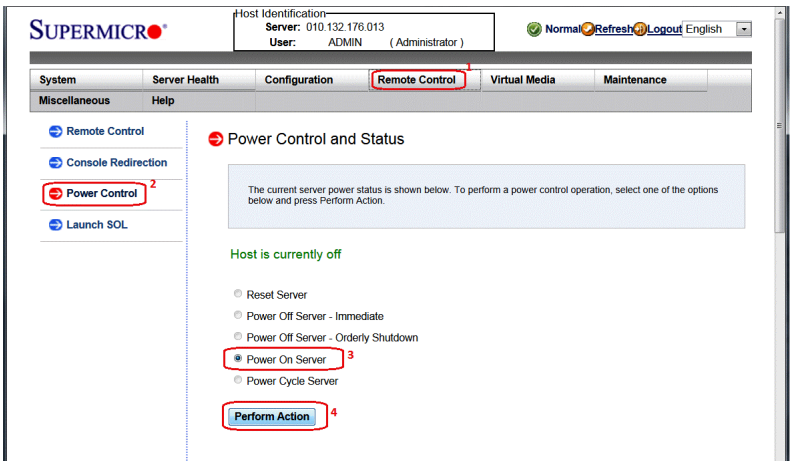
4. In the Java iKVM Browser, click on the **Virtual Media** tab, then **Virtual Storage** to open the Virtual Media Loader.



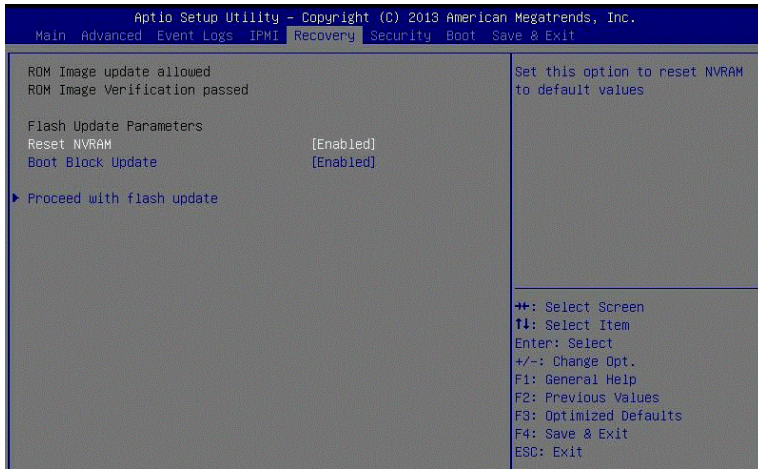
5. In the Virtual Media loader, click on the **Device1** tab, then **Logical Drive Type** drop-down menu, then select the USB flash drive with Super.ROM. Click **Plug In**, then **OK**.



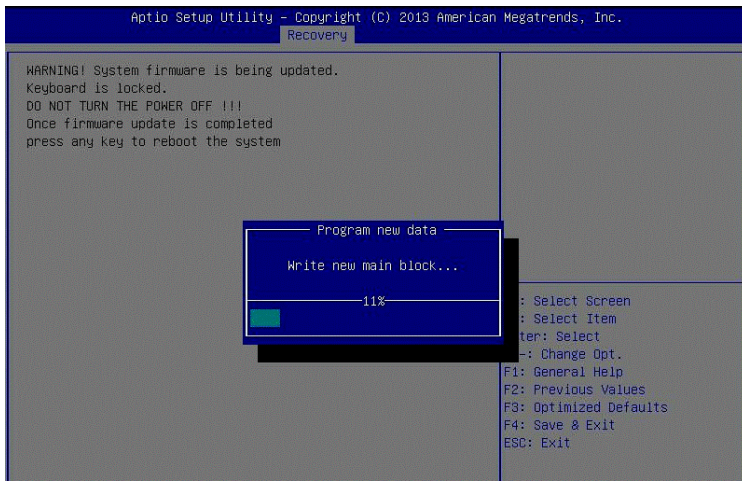
6. Click on the **Remote Control** tab, then **Power Control**, then check the **Power On Server** button. Click on the **Perform Action** button to power up the system.



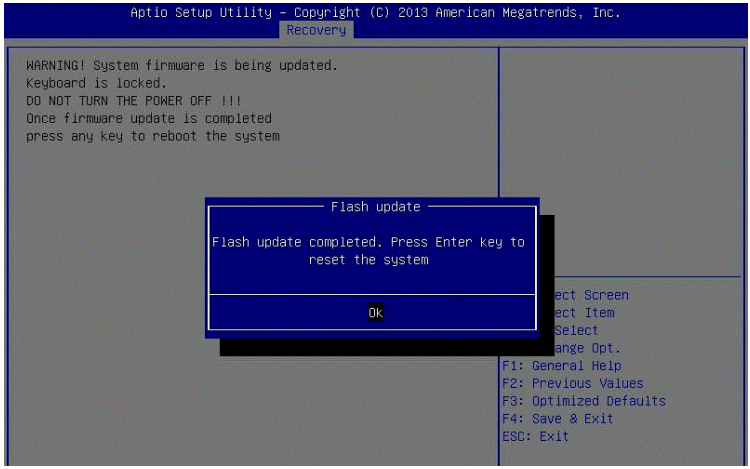
7. After the system powers on, the secondary boot block starts to initialize the essential hardware components and locates Super.ROM in the USB flash drive, which was mounted earlier. If Super.ROM is found, the on-duty boot block boots to it and finishes the rest of the POST processes. The system will automatically enter the BIOS recovery flash page in Setup at the end of POST. Move the cursor to **Proceed with flash update** and press **ENTER**.


Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Main Advanced Event Logs IPMI Recovery Security Boot Save & Exit
ROM Image update allowed
ROM Image Verification passed
Flash Update Parameters
Reset NVRAM [Enabled]
Boot Block Update [Enabled]
Proceed with flash update
Set this option to reset NVRAM to default values
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

8. The BIOS recovery flash begins and programs the boot blocks as well as the main block.


Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
Recovery
WARNING! System firmware is being updated.
Keyboard is locked.
DO NOT TURN THE POWER OFF !!!
Once firmware update is completed
press any key to reboot the system
Program new data
Write new main block...
11%
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

9. A message box will appear to indicate the BIOS recovery flash process is complete. Press **ENTER** to finish. The system will do a power cycle to deactivate the dual boot block feature and produce a normal BIOS POST.

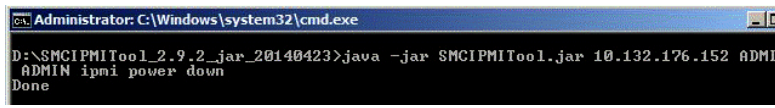


D-2 IPMI Command Sets

To perform perform the Dual Boot Block through the IPMI Command Sets, follow the instructions below:

1. After the IPMI GUI browser log-in, click on the **Remote Control** tab, then **Console Redirection**, then the **Launch Console** button to open Java iKVM Viewer.

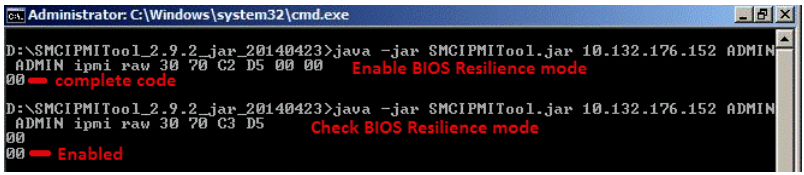
2. Open a DOS command prompt for SMCIIPMITool execution. Type **ipmi power down** to power off the defective system.



3. Enable BIOS Resilience mode in remote IPMI and confirm.

- To enable, type the following command in the command prompt:
  ipmi raw 30 70 C2 D5 00 00

- To confirm, type the following command in the command prompt:
  impi raw 30 70 C3 D5


Administrator: C:\Windows\system32\cmd.exe
D:\SMCIPMITool_2.9.2_jar_20140423>java -jar SMCIPMITool.jar 10.132.176.152 ADMIN
ADMIN ipmi raw 30 70 C2 D5 00 00
Enable BIOS Resilience mode
00 complete code
D:\SMCIPMITool_2.9.2_jar_20140423>java -jar SMCIPMITool.jar 10.132.176.152 ADMIN
ADMIN ipmi raw 30 70 C3 D5
Check BIOS Resilience mode
00
00 Enabled

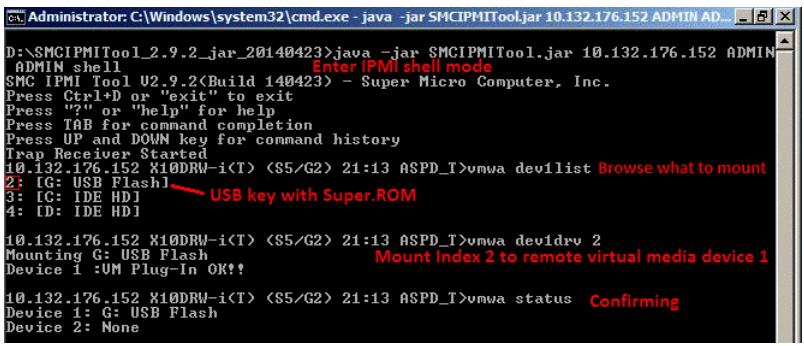
4. Mount the USB flash drive with Super.ROM to remote Virtual Media Device 1. This must de done in the IPMI Shell mode.

- To enter the IPMI Shell mode, type: **shell**

- To see the list of drives, type: **vmwa dev1list**

- To mount the drive, type: **vmwa dev1drv 2.**
  In this example, the USB flash drive is drive #2 (drv 2). Drive numbers may vary in each system.

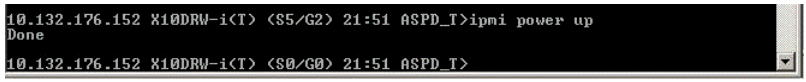
- To confirm if the drive is mounted, type: **vmwa status**


Administrator: C:\Windows\system32\cmd.exe - java -jar SMCIPMITool.jar 10.132.176.152 ADMIN AD...
D:\SMCIPMITool_2.9.2_jar_20140423>java -jar SMCIPMITool.jar 10.132.176.152 ADMIN
ADMIN shell
Enter IPMI shell mode
SMC IPMI Tool V2.9.2(Build 140423) - Super Micro Computer, Inc.
Press Ctrl+D or "exit" to exit
Press "?" or "help" for help
Press TAB for command completion
Press UP and DOWN key for command history
Trap Receiver Started
10.132.176.152 X10DRW-i(T) (S5/G2) 21:13 ASPD_I>vmwa dev1list
Browse what to mount
2: [G: USB Flash]
USB key with Super.ROM
3: [C: IDE HD]
4: [D: IDE HD]
10.132.176.152 X10DRW-i(T) (S5/G2) 21:13 ASPD_I>vmwa dev1drv 2
Mounting G: USB Flash
Mount Index 2 to remote virtual media device 1
Device 1 :VM Plug-In OK!!
10.132.176.152 X10DRW-i(T) (S5/G2) 21:13 ASPD_I>vmwa status
Confirming
Device 1: G: USB Flash
Device 2: None

5. Power on the remote system for BIOS recovery flash.

- To power on, type: **ipmi power up**

After the system powers on, the secondary boot block initializes the essential hardware components and locates Super.ROM in the USB flash drive, which are the same as Steps 7-9 in Section D-1.



User Approach

Dual Boot Block is not designed for an automatic operation, non user-attended operation. The feature offers an immediate resilience after a BIOS upgrade somehow stops upon flashing the on-duty boot block. For a BIOS upgrade on multi-node, SUM is recommended. Please contact your Field Application Engineer representative for an understanding of the SUM product.

Notes

(Disclaimer Continued)

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